
Chapter 2 — Feature descriptions

Introduction

This chapter describes Option 11 feature support and interaction with ISDN BRI. The chapter is divided into the following sections:

- A description and implementation procedures for ISDN BRI specific features, including set-based ISDN BRI features on Meridian 1 ISDN BRI terminals (the M5317TDX and the M5209TDcp)
- Generic X11 features:
 - ISDN BRI Lines
 - ISDN BRI Trunks—TIE
- Generic X11 International features
 - ISDN BRI Lines and Trunks

ISDN BRI specific features

The following unique ISDN BRI features are described below. Where applicable, implementation procedures are provided.

- Calling Line Identification Presentation/Calling Line Identification Restriction
- ISDN BRI National ISDN-1 Conference
- ISDN BRI circuit-switched data calls
- ISDN BRI Special Call Forward Busy
- ISDN BRI Special Hunting
- ISDN BRI ETSI Call Forwarding Unconditional
- ISDN BRI ETSI Conference
- ISDN BRI National ISDN-1 Call Forward All Calls
- ISDN BRI Connected Line Presentation (COLP)/Restriction (COLR)
- NI-1 BRI Compliance Enhancements

Calling Line Identification Presentation and Restriction

This feature allows or restricts the display of a Calling Line ID on the called party terminal. Calling Line ID Presentation (CLIP) controls the called party terminal's choice to display the calling line identification for incoming calls.

Presentation (PRES) controls the calling terminal's choice to send or PRES restricts sending the Calling Line ID when placing an outgoing call. The calling terminal can choose to send or restrict sending the calling line identification on a call-by-call basis. The PRES button on the ISDN BRI terminal can be set to YES to allow sending the calling line identification or set to NO to restrict sending the calling line identification to the called terminal. The PRES button on the terminal overrides the PRES parameter. CLIP and PRES parameters are configured for an ISDN BRI DN when configuring the TSP using LD 27.

The calling party number is contained in the calling party information element in the setup message. The information element is optional and need not be contained in the setup message. If the information element is not presented, the default DN selected in the TSP is used as the calling party DN.

If the call is originated from a non-ISDN BRI to an ISDN BRI terminal, the calling party number is based on the class of service of the non-ISDN BRI terminal. The class of service can be set for PDN which uses the primary DN of the non-ISDN BRI terminal as the calling party number or LDN which uses the listed DN of the non-ISDN BRI terminal customer as the calling party number.

If the calling party is using an ISDN BRI terminal and has called party number restricted, the called party's display shows the trunk access code rather than the ISDN BRI DN.

National ISDN-1 Conference

This version of ISDN BRI Conference is based on National ISDN-1.

Terminals which are supported are:

- Northern Telecom's M5317TDX (version 2.3a and above)
- Northern Telecom's M5209TDcp (version 2.28 and above), and
- third-party vendor manufactured terminals which are deemed compatible

ISDN BRI terminals can conference in both ISDN BRI and non-ISDN BRI terminal users. An ISDN BRI terminal can also be conferenced into a call by a non-ISDN BRI terminal.

Meridian 1 ISDN BRI supports two versions of Conference: A03, a 3-party Conference and A06, a 6-party Conference. See ISDN Basic Rate Interface administration (5533901300) for configuration details.

ISDN BRI Conference operates under the following conditions:

- the user employs the National ISDN-1 protocol (PRID=6) on the DSL
- the user is subscribed to Conference in its Terminal Service Profile.
- the Feature Activation Identifier and the Feature Indication Identifier are configured both in LD27 and on the ISDN BRI terminal.
- the logical terminal is the controller of only one conference call.
- the bearer capability of the call associated with the conference request is speech or 3.1 kHz audio.

Invoke Conference while making a call The ISDN BRI user may make a conference request by means of a pre-defined softkey or programmable key while dialing the outgoing digits. The provision of this capability is dependent on the implementation of the ISDN BRI terminal.

Invoke Conference during an established call An ISDN BRI user can invoke Conference after the network successfully translates the dialed digits, or while the called party is being rung, or while the user is on an answered call.

Add a conferee The ISDN BRI user can add a conferee with Consultation Hold, add a held call to an active conference, or add an active call to a held conference providing:

- the Conference Controller (an ISDN BRI user who is subscribed to Conference) is connected to only one active speech or 3.1 kHz audio call
- both the active call and the held call have been answered
- neither the active call nor the held call is undergoing call clearing
- the controller's conference size is not exceeded
- the B-channel to which the Conference Controller is connected can be used to complete the conference
- both calls are not conference calls

Conference disconnect If the controller requests a disconnect signal, the network disconnects the entire conference if:

- only one party will remain after the controller disconnects
- none of the calls that will remain has been answered
- only two parties remain and both are outgoing trunk calls
- more than two parties remain and all are trunk calls

Otherwise, only the controller is disconnected and the rest of the conferees remain.

Call Transfer during Conference Using the Conference feature, a Call Transfer can be achieved in the following way:

Ann makes a call to Bob. Bob answers the call and conferences Carl. After Carl answers the call, Bob completes the conference. Then Bob can disconnect himself from the conference, thus transferring Ann to Carl.

The same conditions that determine whether the remaining parties in a conference should be dropped when one party disconnects from the conference apply here. For example, Bob makes a call to Ann. Then Bob conferences in Carl. If both Ann and Carl are on a remote node (that is, both calls made by Bob to Ann and Carl are outgoing trunk calls), then as Bob disconnects from the conference, both Ann and Carl will be dropped as well. Call Transfer cannot be achieved in this scenario.

Programming procedures for ISDN BRI National ISDN-1 Conference

The following steps should be used to configure ISDN BRI National ISDN-1 Conference:

- 1 **Configure National ISDN-1 protocol for a DSL using LD 27.**
- 2 **Configure Conference in the TSP using LD 27.**

LD 27 – Configuring National ISDN-1 for a DSL

Prompt	Response	Description
REQ	NEW/CHG	New, or change.
TYPE	DSL	Digital Subscriber Loop.
DSL	c dsl#	DSL address.
...		
PRID	6	Protocol Identification. Enter 6 for NI-1.
FDN	nnnnnnn	Flexible Call Forward No Answer DN.
...		

LD 27 – Configuring Conference in the TSP.

Prompt	Response	Description
REQ	NEW/CHG	New, or change.
TYPE	TSP	Terminal Service Profile.
DSL	c dsl#	DSL address.
...		
FEATID	aaa mmm nnn Xmmm <cr>	Feature ID (must be unique for a TSP), where: aaa = feature; enter AO6 for six-party conference (up to 30 parties can be conferenced, but it is not recommended), or AO3 for three-party conference. mmm = feature activation ID (1-127). nnn = feature indication ID (1-127). Xmmm = delete feature. <cr> = skip feature ID definition (aaa mmm nnn is re-prompted until <cr> is entered).
...		

ISDN BRI circuit-switched data calls

ISDN BRI to ISDN BRI circuit-switched data calls

Circuit-switched data calls between two ISDN BRI terminals are supported for all bearer capability encodings. The Meridian 1 screens for the validity of its bearer capability codepoints only; it does not screen for protocol compatibility between two ISDN BRI devices. The Meridian 1 presents the call to the terminating party; the two ISDN BRI devices determine whether they can communicate with the specified bearer capability. If the ISDN BRI terminals decide that the protocol is incompatible, either terminal may drop the call.

ISDN BRI accessing Meridian 1 data modules

Meridian 1 offers data access through special data adapters (for example, ASIM). These adapters provide Northern Telecom proprietary DM-DM protocol for data transmission. The ISDN BRI terminal cannot communicate with these adapters because of protocol incompatibility. Calls from an ISDN BRI terminal to these data modules are blocked; similarly, calls from these data modules to an ISDN BRI terminal are also blocked.

ISDN BRI terminals can communicate with these data modules under one condition: ISDN BRI terminals that support the TLINK protocol can communicate with these Meridian 1 data adapters if the circuit-switched data call is placed across an ISDN PRI or DTI link. This access is possible because the ISDN PRI or DTI pack provides protocol conversion from TLINK to DM-DM and vice versa.

ISDN BRI accessing Meridian Communication Adapters

The MCA operates in three modes: DM-DM, TLINK and PSDS. An MCA operating in TLINK mode communicates with ISDN BRI terminals that support TLINK protocol. Calls from an ISDN BRI terminal (with the appropriate bearer capability encodings) to an MCA and vice versa are allowed to terminate; however, if the protocol exchange fails between the ISDN BRI and MCA devices, if the MCA is not operating in TLINK mode, for example, then the call may be dropped by either device.

The following describe the bearer capability encodings used by ISDN BRI terminals that support TLINK protocol. Only calls originating from ISDN BRI with these bearer capability encodings are allowed to terminate to a MCA:

- 64k clear: Octet 3 = unrestricted digital information, octet 4 = 64 kbits/s, no octet 5s are included.
- 64k restricted: Octet 3 = restricted digital information,
- octet 4 = 64 kbits/s, no octet 5s are included.
- 56k: Octet 3 = restricted or unrestricted digital information,
- octet 4 = 64kbits/s, octet 5 = v.110 and octet 5a = 56kbits/s.

ISDN BRI accessing ADM trunks

ADM trunk is not a trunk; it groups ADM devices in a route to allow an idle ADM device defined in the given route to be searched or hunted easily when the route access code is dialed. The Meridian Communication Unit (MCU) may be defined as an ADM trunk with the MCU trunk as a subtype. Because MCU can support TLINK protocol, an ISDN BRI terminal accessing this type of ADM route is allowed to terminate to an idle device found in the route and the conditions described for accessing MCA apply here. However, if the ADM route is not an MCU trunk subtype, then ISDN BRI is blocked from accessing the ADM routes because of incompatible protocols.

ISDN BRI terminals may access an ADM trunk that are not MCU subtype under one condition: ISDN BRI terminals that support TLINK protocol can access an ADM trunk if the circuit-switched data call is placed across an ISDN PRI or DTI link. This access is possible because the ISDN PRI or DTI pack provides protocol conversion from TLINK to DM-DM and vice versa.

ISDN BRI accessing ISDN PRI

The ISDN PRI interface supports three bearer capability encodings:

- 64k clear: Octet 3 = unrestricted digital information, octet 4 = 64 kbits/s, no octet 5s are included.
- 64k restricted: Octet 3 = restricted digital information, octet 4 = 64 kbits/s, no octet 5s are included.
- 56k: Octet 3 = restricted or unrestricted digital information, octet 4 = 64kbits/s, octet 5 = v.110 and octet 5a = 56kbits/s.

ISDN BRI originated circuit-switched data calls are allowed access to ISDN PRI trunk if these encodings are used.

ISDN BRI devices using other bearer capability encodings can communicate with another ISDN BRI device across ISDN PRI under these conditions:

- the ISDN PRI interface is Meridian 1, Japan D70, or ESS#4/ESS#5;
and
- the remote capability for ISDN BRI interworking is turned on (in LD17) for all ISDN PRI interfaces involved in the call.

ISDN BRI accessing DTI trunks

ISDN BRI circuit-switched data call can access a DTI trunk only if the bearer capability is:

- 56k: octet 3 = restriction or unrestricted digital information, octet 4 = 64 kbits/s, octet 5 = v.110 and octet 5a = 56 kbits/s.

ISDN BRI terminals using V.120 protocol at 56 kbps are not supported over DTI trunks.

ISDN BRI circuit-switched data call tandem across ISDN PRI

In the ISDN PRI and DTI pack, a protocol convertor is inserted by default to convert DM-DM protocol to TLINK at the tandem node and vice versa. Because of this, an ISDN BRI circuit-switched data call tandem across ISDN PRI, DTI trunks or a combination of ISDN PRI and DTI trunks is supported only for ISDN BRI terminals that use TLINK protocol. ISDN BRI terminals using other protocols, such as V.110 and V.120, require the Transparent Data Networking feature to provide transparent data channel through the tandem nodes.

Public switched data service

Public switched data service provides a pure 56 kbps data transmission. The data module on both ends must establish identical parameters manually before the data call is made.

ISDN BRI terminals can access Public Switched Data Service provided a dedicated data route is used; when a voice/data shared route is used, the ISDN BRI terminal must generate a burst of tone to the network provider to turn off the echo cancellation.

ISDN BRI accessing analog line by means of a modem trunk

ISDN BRI circuit-switched data calls accessing analog lines through modem trunks are supported only if the data module connected to the modem uses TLINK, V.110 or V.120 protocol.

An ISDN BRI device with the TLINK protocol can access analog lines through modem trunk configuration using a DTE type MCU, because the MCU supports TLINK protocol. ISDN BRI devices cannot communicate with other Meridian 1 DTE type data modules that connect to modems because they use the DM-DM protocol.

ISDN BRI terminals may access analog lines through modem trunk configurations using DM-DM type data modules under one condition: ISDN BRI terminals that support TLINK protocol can access these modem trunks if the circuit-switched data call is placed across an ISDN PRI or DTI link. This access is possible because the ISDN PRI or DTI pack provides protocol conversion from TLINK to AM-AM and vice versa.

ISDN BRI Special Call Forward Busy

This feature is activated for a call terminated at a DSL. The call is forwarded to the attendant when a call encounters the following busy conditions. The calling party receives a busy tone in all other cases.

- the maximum number of calls on a DSL is exceeded, and
- an ISDN BRI DN has Call Forward busy enabled as configured in TSP using LD27
- ISDN Hunting is not allowed or the call fails to find an idle hunt DN.

With Call Forward Busy, Special Hunting, if both B-channels are defined and there is not a second DN, the result is **Busy**.

ISDN BRI Special Hunting

This feature is activated when a call terminating at a DSL encounters the following busy conditions:

- the maximum number of calls on a DSL is exceeded, or
- the total number of calls including active, on hold, waiting, and in progress exceeds the number of Bchannels provided for the incoming call type.

Hunting routes the call through predetermined steps until an idle DN is found for that call. Internal and external hunt DNs are configured in the DSL and Hunting Allowed and Call Forward by Call type are configured in the TSP using LD27. If Hunting is not allowed or the call fails to find an idle DN, the following occurs.

- a busy tone is given if the number of calls exceeds the maximum calls specified for that DSL and call forward busy does not succeed.

Note: The call is forwarded only if it is a DID call

- the call is presented as Call Waiting if the maximum number of calls for that DSL is not exceeded.

An ISDN BRI terminal originating the call is not updated to show on its display that the call was redirected to a different DN as a result of Hunting. This is due to a lack of standard for layer 3 messages used to update the terminal display.

ISDN BRI ETSI Call Forwarding Unconditional

The European Telecommunication Standards Institute (ETSI) Call Forwarding Unconditional (CFU) supplementary service allows an incoming call to an ISDN BRI terminal to be forwarded to a predetermined destination, within or outside the Meridian 1 system. The call is forwarded regardless of whether the user is busy or idle.

An ISDN BRI user can assign the same address or a different address for voice or data calls being forwarded. Calls can also be forwarded to an ISDN BRI terminal or a non-ISDN BRI terminal. When the CFU feature is activated, outgoing calls can still be made from the ISDN BRI terminal.

The ETSI supplementary service provides Call Forwarding capabilities to all users on the access (i.e., all the DNs defined under a Digital Subscriber Loop (DSL)), or an individual user (i.e., a DN).

The following functionalities are currently supported:

- When a call is forwarded, if the caller is using a BRI set they will be notified by the Meridian 1 that the call has been forwarded. In addition, the caller is provided with the forwarded-to number.
- When a call is forwarded from an ISDN BRI terminal that has CFU activated, the terminating terminal will be notified by the Meridian 1 that the ISDN BRI terminal forwarded the call.

Operating parameters

The ETSI CFU supplementary service is based on the Meridian 1 Call Forwarding All Calls feature. Therefore, Meridian 1 Call Forwarding All Calls feature limitations also apply to this feature.

ETSI CFU basic service is limited to speech, 3.1 kHz audio, unrestricted digital information and restricted digital information.

Interrogation of all served users in TSP 0 will be supported. However, if the number of DNs is too large to fit into one message, interrogation of all served users in TSP 0 will not be supported.

ETSI public ISDN partial rerouting will not be supported. According to ETSI standards, when the Meridian 1 receives a local exchange call and the call is forwarded within or outside of the system, the Meridian 1 should send a message to the local exchange to make the call directly to the forwarded-to user.

During a data dump, the forwarded-to user's address will not be saved because of protected data storage space. In LD 17, the CFWS prompt, which enables users to save Call Forwarding feature activation during data dump so that during SYSLOAD the feature will be activated, will be ignored for users of ISDN BRI.

The following hardware is required:

- Multi-purpose ISDN Signaling Processor
- S/T Interface Line Cards/U Interface Line Cards, and
- ISDN BRI terminals that support ETSI Call Forward Unconditional supplementary service.

Feature interactions

Call Waiting

User requesting all calls to be forwarded – ETSI CFU takes precedence over Call Waiting.

Forward-to user – A forwarded call can invoke Call Waiting.

Conference Call, Add-on

Calling user – If a conference controller calls a person who has CFU activated to establish a conference, the forwarded-to user will be alerted and added to the conference call after the call is answered.

Forwarded-to user – A call that has been forwarded to the conference controller can be added to an existing conference. A forwarded-to user can establish a conference using the existing forwarded call provided that the call is in the active state.

Call Forward All Calls

The Meridian 1 Call Forward All Calls feature allows only calls to the Prime DN or a single appearance DN to be forwarded. For an ISDN BRI set, calls are forwarded based on this basic service. Since ETSI CFU supplementary service is developed based on the Call Forward All Calls feature, all the existing feature interactions of Call Forward All Calls apply to ISDN BRI terminals.

***BRI Special Call Forward Busy
Call Forward No Answer***

The ETSI CFU supplementary service takes precedence over BRI Call Forward Busy, and Call Forward No Answer.

Call Forward and Busy Status

Call Forward and Busy Status allows a user to forward calls and monitor the Call Forward and Busy Status from the forwarded-to user. This requires a Busy/Forward Status key. An ISDN BRI terminal cannot monitor other set's Call Forward Busy Status and in turn its Call Forward Busy Status cannot be monitored by other sets.

Remote Call Forward

Remote Call Forward allows a user to program Call Forwarding from a remote set. Call Forwarding remotely to an ISDN BRI terminal is supported. However, using Remote Call Forward from an ISDN BRI terminal is not supported.

Attendant and Network-wide Remote Call Forward

This feature allows the configuration of Call Forward from an Attendant Console and a remote set across a Meridian Customer Defined Network (MCDN). For an ISDN BRI terminal, Remote Call Forward is allowed from a set, or from an Attendant Console, but not from a BRI set either locally or network wide. When Call Forward is activated, it is assumed that the Call Forward for the BRI set is voice, not data.

Call Forward/Hunt Override via Flexible Feature Code

This feature allows all attendants and sets with Call Forward/Hunt Override Allowed (CFHA) Class of Service to override Call Forward All Calls (CFAC). Since an ISDN BRI terminal cannot access Flexible Feature Codes, it cannot override CFAC on other sets. However, an ISDN BRI set's Call Forward Unconditional can be overridden by a set having CFHA Class of Service or by an attendant in both standalone and network environments.

Internal Call Forward

An ISDN BRI terminal cannot activate the internal Call Forward feature.

Call Forward Reminder Tone

The Call Forward Reminder Tone is supported on ISDN BRI sets that have the Call Forward Unconditional feature active.

Call Forward Confirmation Tone

During activation or deactivation of Call Forward from a BRI terminal, a Call Forward confirmation tone is not provided to the BRI terminal. Instead, confirmation is done by sending a BRI message to the terminal.

Feature packaging

There is no new feature package defined for this feature; however, the following feature packages are required for ISDN BRI:

- Basic Rate Interface (BRI) package 216
- Basic Rate Interface Line Application (BRIL) package 235, and
- Meridian 1 Extended Peripheral Equipment (XPE) package 203.

Programming procedures for ISDN BRI ETSI Call Forwarding Unconditional

The following steps should be used to configure ISDN BRI ETSI Call Forwarding Unconditional:

- 1 Configure ETSI protocol for a DSL using LD 27**
- 2 Configure an ISDN BRI terminal using LD 27.**

LD 27 — Configuring ETSI protocol for a DSL

Prompt	Response	Comment
REQ	NEW	Enter new data.
TYPE	DSL	Digital Subscriber Loop.
DSL	c dsl#	DSL address.
...		
PRID	2	Protocol Identifier. Enter 2 for ETSI.
...		

LD 27 — Configuring an ISDN BRI terminal

Prompt	Response	Comment
REQ	NEW	Enter new data
TYPE	TSP	Terminal Service Profile
DSL	c dsl#	DSL address (as already entered in step 1).
USID	0-15	User Service Identifier. 0 = default TSP.
MPHC	No	This TSP is not configured for Meridian 1 Packet Handler.
SPID	aaaaaaaa	Service Profile Identifier (up to nine characters; eight SPIDs per TSP).
DN	nnnnnnn	Directory Number associated with the TSP(up to seven digits)
CT	vce dta	Call type (enter vce for voice or dta for data)
...		
FEAT	CFXA	Allow Call Forward External for the DN.
SSRV_	VCFW DCFW	For voice call type, enter VCFW for Voice Call Forward.
ETSI		For data call type, enter DCFW for Data Call Forward.
...		

ISDN BRI ETSI Conference

This feature development provides a subset of the European Telecommunication Standards Institute (ETSI) Conference capabilities to Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) users connected to a Meridian 1 using ETSI protocols.

The ISDN BRI Supplementary Services ETSI Conference feature supports the following conference capabilities:

- Conference invocation (beginning the conference from the active call state)
- Adding a conferee
- Disconnection by a conferee
- Termination of the conference (this subfeature will not be implemented as ETSI specifies. ETSI specifies that when a conference controller disconnects, all conferees will be disconnected; however, this subfeature follows the current Meridian 1 Conference feature in that when a conference controller disconnects the conference continues for the remaining parties).

An ISDN BRI user can conference a maximum of three or six parties depending on the Terminal Service Profile (TSP) configuration administered through LD 27. The ETSI Conference feature can be invoked by a user while the user is on an established call. Once conference is invoked, the user can add another party (active or held) to the conference call.

Operating parameters

ISDN BRI terminals must support both ETSI basic call and ETSI Conference Supplementary service signaling protocols.

ETSI Conference only supports speech or 3.1 kHz; other bearer services such as 7 kHz, unrestricted digital information, and restricted digital information are not supported.

In a conference call, a maximum of two parties (including conference controller and conferees) can be from the same Digital Subscriber Loop (DSL), due to the availability of only two B-channels per ISDN BRI interface.

The Meridian 1 only sends notification messages to conferees or the conference controller when conference operations are requested and performed if they are ISDN BRI users. If a user is on another node across ISDN or non-ISDN trunks, the Notify message will not be sent.

Feature interactions

Conference

ISDN BRI terminals can conference in both ISDN BRI and non-ISDN BRI terminal users; similarly, an ISDN BRI terminal can also be conferenced into a call by a non-ISDN terminal. However, in either case, the ISDN BRI terminal display will not be updated due to lack of protocol to support it.

ISDN PRI Network Call Redirection

When an ISDN BRI conference call is dropped to a simple call, if a party in the simple call is an ISDN BRI user, the corresponding BRI name and number will be updated on the other party's non-ISDN set display. However, the ISDN BRI display will not be updated due to lack of standard protocol to support this function.

Held Call Clearing

Held Call Clearing allows a set to clear both active calls and held calls by going on-hook. This will not apply to an ISDN BRI set.

ISDN BRI Trunk Access

The ISDN BRI Trunk Access feature is similar to ISDN PRI Trunk Access. Therefore, an ISDN BRI ETSI conferee can be a user across an ISDN BRI trunk.

Feature packaging

There is no new feature package defined for this feature; however, the following feature packages are required for ISDN BRI:

- Basic Rate Interface (BRI) package 216
- Basic Rate Interface Line Application (BRIL) package 235, and
- Meridian 1 Extended Peripheral Equipment (XPE) package 203.

Programming procedures for ISDN BRI ETSI Conference

The following steps should be used to configure ISDN BRI ETSI Conference:

- 1 Configure ETSI protocol for a DSL using LD 27**
- 2 Configure Conference in the TSP using LD 27.**

LD 27 — Configuring ETSI protocol for a DSL

Prompt	Response	Comment
REQ	NEW	Enter new data.
TYPE	DSL	Digital Subscriber Loop.
DSL	c dsl#	DSL address.
...		
PRID	2	Protocol Identifier. Enter 2 for ETSI.
	(WTA), WTD	Enter WTD for Warning Tone Denied (Warning Tone Allowed has to be overridden),
...		

LD 27 — Configuring Conference in the TSP

Prompt	Response	Comment
REQ	NEW	Enter new data
TYPE	TSP	Terminal Service Profile
DSL	c dsl#	DSL address (as already entered in step 1).
...		
SUPL_SVC	AO6, AO3	Enter AO6 for 6-party Conference or AO3 for 3-party Conference.
...		

ISDN BRI National ISDN-1 Call Forward All Calls

This feature enables a user to have calls redirected from the user's directory number to another directory number. Calls are redirected regardless of the busy or idle status of the interface to the user. Call Forward is assigned on the basis of the directory number and call type (i.e., the user may have voice calls forwarded, while data calls terminate normally).

In Release 20B, only the National ISDN-1 Feature Key Management interface is available for users to invoke the feature. When Call Forward is activated the Feature Activation Information Element (IE) is sent from the base DN to the Meridian 1 system for either feature activation or deactivation. The Feature Activation IE consists of the feature identifier which represents the combination of the Call Forward feature, the DN, and the call type. There are two methods of feature activation: Call associated; and Non-call associated. In both cases the Feature Activation Information Element is used to activate the feature for the DN and Call Type.

Operating parameters

This feature is based on the Meridian 1 Call Forward All Calls feature; therefore, it is subject to the same limitation as the Meridian 1 Call Forward All Calls feature.

ISDN BRI terminals must support the Feature Key Management protocol.

When a DN from a Terminal Service Profile (TSP) activates or deactivates the Call Forward feature, it applies to all appearances of the same DN from different TSPs on the same Digital Subscriber Loop (DSL). For example, if a boss and a secretary each has their own BRI terminal and the secretary has her boss' DN on her set, when the boss activates Call Forward the call will not be terminated on the secretary's set. If the secretary deactivates the feature, the call will be terminated on the boss' and the secretary's sets.

Data dump does not store the Call Forward numbers and Call Forward status for BRI terminals. Therefore, after SYSLOAD the Call Forward feature is no longer activated and the Call Forward numbers are not saved in the Meridian 1.

There is no confirmation tone provided from the Meridian 1 when the Call Forward feature is invoked from an ISDN BRI terminal.

Only one BRI terminal from a Digital Subscriber Loop (DSL) is allowed to activate or deactivate the Call Forwarding feature at a time. If two BRI terminals try to activate or deactivate at the same time only the first action is allowed. The second terminal is denied the service.

Feature interactions

Call Forward All Calls

Meridian 1 Call Forward All Calls only allows calls to a prime DN or single appearance DN to be forwarded. For the BRI interface, the terminology of prime DN and single appearance DN does not apply. When Call Forward has been activated for a DN and Call Type, calls to the DN/Call Type are forwarded regardless of which Terminal Service Profile (TSP) that the DN/Call Type is assigned. In addition, redirecting information about the BRI terminal is delivered to the remote DN. If the remote DN is an ISDN BRI terminal, the redirecting information is passed in the Redirecting Number IE of the SETUP message to the BRI terminal.

When an ISDN BRI terminal has activated the Call Forward feature, it is treated as if it is a set from the Meridian 1 activating the feature. The Meridian1 features that are normally applicable to the set will also be applicable to the BRI terminal.

Call Forward No Answer Busy

As in the case of Call Forward All Calls, the National ISDN 1 Basic Rate Interface (BRI) Call Forward All Calls feature takes precedence over Call Forward No Answer, and Call Forward Busy.

Network Call Redirection

When a call to the BRI interface is forwarded, the redirecting DN and the reason for call redirection are passed to the remote user if the remote user is connected by ISDN. The redirecting information is encoded in the ISDN SETUP message for display purposes. In addition, Call Forward to another node from an ISDN BRI terminal is counted as one for the ISDN network Call Redirection counter which is defined in the customer data block.

Call Forward and Busy Status

This feature is not supported for ISDN BRI terminals.

Remote Call Forward

Remote Call Forward allows a user to program Call Forwarding from a remote set. Call Forwarding remotely to an ISDN BRI terminal is supported. However, using Remote Call Forward from an ISDN BRI terminal is not supported.

Attendant and Network-wide Remote Call Forward

This feature allows the configuration of Call Forward from an Attendant Console and a remote set across a Meridian Customer Defined Network (MCDN). For an ISDN BRI terminal, Remote Call Forward is allowed from a set, or from an Attendant Console, but not from a BRI set either locally or network wide. When Call Forward is activated, it is assumed that the Call Forward for the BRI set is voice, not data.

Internal Call Forward

An ISDN BRI terminal cannot activate the internal Call Forward feature.

Call Forward/Hunt Override via Flexible Feature Code

This feature allows all attendants and sets with Call Forward/Hunt Override Allowed (CFHA) Class of Service to override Call Forward All Calls (CFAC). Since an ISDN BRI terminal cannot access Flexible Feature Codes, it cannot override CFAC on other sets. However, an ISDN BRI set's Call Forward All Calls can be overridden by a set having CFHA Class of Service or by an attendant in both standalone and network environments.

Call Forward Reminder Tone

The Call Forward Reminder Tone is supported on ISDN BRI sets that have the Call Forward All Calls feature active.

Call Forward Confirmation Tone

During activation or deactivation of Call Forward from a BRI terminal, a Call Forward confirmation tone is not provided to the BRI terminal. Instead, confirmation is done by sending a BRI message to the terminal.

Call Forward Save on SYSLOAD

Call Forward Save on SYSLOAD is not supported for ISDN BRI terminals.

Feature packaging

There is no new feature package defined for this feature; however, the following feature packages are required for ISDN BRI:

- Basic Rate Interface (BRI) package 216
- Basic Rate Interface Line Application (BRIL) package 235, and
- Meridian 1 Extended Peripheral Equipment (XPE) package 203.

Programming procedures for ISDN BRI National ISDN-1 Call Forward All Calls

The following steps should be used to configure ISDN BRI National ISDN-1 Call Forward All Calls:

- 1 Configure National ISDN-1 protocol for a DSL using LD 27**
- 2 Configure Call Forward All Calls in the TSP using LD 27.**

LD 27 — Configuring National ISDN-1 protocol for a DSL

Prompt	Response	Comment
REQ	NEW	Enter new data.
TYPE	DSL	Digital Subscriber Loop.
DSL	c dsl#	DSL address.
...		
PGPN	1	Protocol Set Group Number.
PRID	6	Protocol Identifier. Enter 6 for National ISDN-1.
...		

LD 27 — Configuring Call Forward All Calls in the TSP

Prompt	Response	Comment
REQ	CHG	Change data.
TYPE	TSP	Terminal Service Profile
DSL	c dsl#	DSL address (as already entered in step 1).
...		
DN	nnnnnnn	Directory Number associated with the TSP(up to seven digits).
...		
FEAT	CFXA	Allow Call Forward External for the DN.
SSRV_NI	VCFA 15 16	Feature Identifiers for Call Forward voice activation.
	VCFD 15 16	Feature Identifiers for Call Forward voice deactivation.
	DCFA 16 26	Feature Identifiers for Call Forward data activation.
	DCFD 17 27	Feature Identifiers for Call Forward data deactivation.
...		

ISDN Basic Rate Interface Connected Line Presentation/Restriction

ISDN Basic Rate Interface Connected Line Presentation/Restriction is a supplementary service that enables the Meridian 1 to either allow or restrict the presentation of a connected party's ISDN number and sub-address on the display of an ISDN BRI terminal. The presentation of a ISDN number and sub-address to the calling party occurs when the connected party's ISDN BRI terminal answers the call. In addition to the BRI terminal, this service can be applied to Meridian 1 proprietary and Analog (500/2500 type) sets.

The Connected Line Presentation (COLP) service applies to the calling party. COLP allows the presentation of the connected party's ISDN number and sub-address to the calling party.

The Connected Line Restriction (COLR) service applies to the connected party. COLR restricts the presentation of the connected party's ISDN number and sub-address to the calling party. COLR is activated on the ISDN BRI terminal of the connected party.

The connected party's identification is only provided to the calling party, if the ISDN BRI terminal of the connected party supports this feature.

When COLP/COLR feature is activated, the system monitors the configuration of the terminal service profiles on the calling and connected parties ISDN BRI terminals. Depending on this configuration, the system determines whether or not information is allowed or restricted to the calling party.

Operating parameters

Through configuration, the Meridian 1 BRI terminal interface controls the provisioning of the connected party's information on the interface (COLP prompt). This avoids sending COLP when the terminal does not support this supplementary information.

With the presentation restricted option activated, some BRI terminals may not have the capability to restrict the presentation of digits from the connected party. The Meridian 1 BRI terminal interface has the capability to restrict sending the connected party information the calling party if COLR is activated (COLP prompt).

ISDN BRI COLP/COLR coding is based on ETSI protocol. COLP/COLR from or to the public network is available to all countries, using the EuroISDN DSS1 protocol on the BRI interface.

The construction of the ISDN BRI connected number follows the same rules that apply to Calling Line Identification when sending an extension number over the same interface. National and local prefixes can be added. The type of numbering plan can be modified the same way they are modified for other types of terminals.

Feature interactions

Digital Terminal Display

When a calling party's digital terminal with display receives the connected party's information element, the display is updated with the received number depending on the presentation status. The presentation status applies to calls originating from non-ISDN extensions.

ISDN BRI terminals

Depending on the configuration of the Terminal Service Profiles, there is or is not full transparency for connected number and connected sub-address exchange between ISDN BRI terminals.

ISDN Central Office Trunks

When a call from a ISDN Central Office (CO) is answered by a ISDN BRI terminal, the ISDN BRI terminal's connected number is sent over the ISDN CO trunk interface, provided that COLP/COLR service is supported. The existing rules to generate the connected number on the ISDN CO interfaces are not modified by COLP/COLR. With the exception of EuroISDN trunks, the connected number is passed only if a redirection occurs.

ISDN Private Trunks

When a call from a QSIG interface is answered by a ISDN BRI terminal, the ISDN BRI terminal's connected number is sent over the QSIG interface. This connected message is given, even though no prior redirection occurred.

When a call from a Meridian Customer Defined Network (MCDN) interface is answered by a ISDN BRI terminal, the ISDN BRI terminal's connected number is sent over the MCDN interface. A connect message is sent no matter how the D-channel is configured and only after a redirection has occurred.

ISDN Calling Line Identification Enhancement

The ISDN Calling Line Identification Enhancement allows the choice of National and Local prefixes. This is applicable to connected numbers received from a ISDN BRI terminal and sent over a ISDN trunk.

EuroISDN Continuation

The EuroISDN Continuation capability adds National and Local prefixes to the connected number being sent. This is programmed on a route basis and is applicable to connected numbers received from a ISDN BRI terminal and sent over a ISDN trunk.

DPNSS/DASS2

The mapping of the connected number information element in a connect message from or to a ISDN BRI terminal and the connected line identification in a CRM message from or to a DPNSS or DASS2 interface is supported.

Feature packaging

ISDN Basic Rate Interface Connected Line Presentation/Restriction requires the following packages:

- Basic Rate Interface Line Application (BRIL) package 235,
- Basic Rate Interface (BRI) package 216, and
- Extended Peripheral Equipment (XPE) package 203.

Feature operation

Connected Line Identification Presentation (COLP)

The number dialed and the connected number may not be the same due to call diversion.

The COLP service is disregarded if the connected party's ISDN BRI terminal has COLR enabled to 'presentation restricted'. As an example, assume that Set A, the calling party, has connected line presentation enabled (COLP = YES) and calls Set B. Set B has enabled 'presentation restricted'. Set A's request for connected line presentation is denied. In situations where the calling party has configured COLP = YES and the connected party has requested 'presentation restricted', the connected party's restriction request prevails.

Connected Line Restriction (COLR)

This service restricts the presentation of the connected party's ISDN number and sub-address to the calling party. When Connected Line Restriction (COLR) has been enabled on the connected party's ISDN BRI terminal, the Meridian 1 system transmits the connected party's information element, based on the Terminal Service Profile (TSP) configuration of the calling user (TRANS prompt in LD 27).

The default configurations for COLP/COLR are as follows. Connected Line Presentation has the default setting connected number presentation restricted (COLP = NO). The connected party's number and subaddress information element are not sent to the calling party's BRI terminal. The calling party's ISDN BRI terminal may display a generic message, such as "Connected User Information Restricted" only if COLP = YES and the connected party has 'presentation restricted'.

Connected Line Restriction has the default setting 'presentation allowed'. If no presentation option is set on the connected party's BRI terminal, the default is inserted. The connected party's number and subaddress information element is sent to the calling party's BRI terminal.

The following scenarios can occur, depending on the individual BRI terminal configuration of the calling party and connected party.

- 1** The BRI terminal of the calling party has the default setting connected number presentation restricted (COLP = NO). The BRI terminal of the connected party has the default setting 'presentation allowed'. The connected party's ISDN BRI number is not displayed to the calling party.
- 2** The BRI terminal of the calling party is configured with connected number presentation allowed (COLP = YES). The BRI terminal of the connected party has enabled 'presentation allowed'. The connected party's ISDN BRI number is displayed to the calling party.
- 3** The BRI terminal of the calling party is configured with connected number presentation allowed (COLP = YES). The BRI terminal of the connected party has enabled 'presentation restricted'. The connected party's ISDN BRI number is not displayed to the calling party.

Programming procedures for ISDN BRI Connected Line Presentation/Restriction

The following steps should be used to configure ISDN BRI Connected Line Presentation/Restriction:

- 1 Configure COLP/COLR on ISDN Basic Rate Interface terminals, using LD 27.
- 2 Configure Connected Line Presentation/Restriction for a Digital Subscriber Loop, using LD 27.

LD 27 – Configuring COLP/COLR for ISDN BRI terminals.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TSP	Terminal Service Profile Data.
...		
DN	xxx...x	Directory Number (1 to 7 digits) of ISDN BRI terminal.
- CLIP	(YES), NO	Calling Line Identification Presentation for Incoming Calls.
- PRES	(YES), NO	Presentation of Calling Line Identification to far end on outgoing calls (allowed) restricted.
- COLP	(NO), YES	YES = Connected, number is passed from Meridian 1 to ISDN BRI terminal. NO = Connected, number is not passed from Meridian 1 to ISDN BRI terminal.
- TRANS	(NO), YES	YES = Connected, number is transmitted to the ISDN BRI terminal as received with no modification. NO = Connected, number is transmitted to the BRI terminal after erasing digits within information element. TRANS is only applicable if the connected number received has presentation restricted.

LD 27 – Configuring Connected Line Presentation/Restriction for a DSL.

Prompt	Response	Description
REQ	CHG	Create new data block.
TYPE	DSL	Digital Subscriber Loop.
DSL	c dsl#	Digital Subscriber Loop address.
USID	x	User Service Identifier.
...		
PRID	2	Protocol Identification. Where: 2 = ETSI is only supported.

NI-1 BRI Compliance Enhancements

This feature enhances the Meridian 1 functional protocol to be compatible with the National ISDN-1 (NI-1) ISDN Basic Rate Interface (BRI) voice and data standard for line application. The NI-1 protocol is configured in Overlay 27, which is used for ISDN BRI administration, by entering “6” against the PRID prompt. This protocol information is downloaded to the Multi-purpose ISDN Signaling Processor’s (MISP) network layer for handling ISDN BRI line application interface with NI-1 compatible terminals.

Another enhancement introduced by this feature is that the alphanumeric value for the Service Profile Identification (SPID) has been expanded from 9 to 20 characters (although the NI-1 standard only requires that the SPID range be from 9-20, the Meridian 1 implementation supports 1-20). The SPID is configured in Overlay 27 (by administering the Terminal Service Profiles) for the network side, and programmed on NI-1 compatible ISDN BRI terminals for the user side (both entries for the SPID must be the same).

Operating parameters

There are no operating parameters for this feature.

Feature interactions

There are no feature interactions for this feature.

Feature packaging

The following packages are required:

- ISDN Basic Rate Interface (BRI) package 216
- ISDN BRI Line application (BRIL) package 235
- Multi-purpose Serial Data Link (MSDL) package 222

Programming procedures for NI-1 BRI Compliance Enhancements

The following steps should be used to configure NI-1 BRI Compliance Enhancements:

- 1** Administer the TSP for a DSL using LD 27.
- 2** Configure the NI-1 protocol for a DSL using LD 27.

LD 27 – Administer the Terminal Service Profiles (TSPs) on a Digital Subscriber Loop (DSL).

Prompt	Response	Description
REQ	NEW CHG	Add a TSP. Change a TSP.
TYPE	TSP	Administer the TSP on a DSL.
DSL	c dsl#	DSL location.
USID	0-15	User service identifier Set USID = 0 to configure a default TSP for non-initializing terminals. Set USID = 1-15 for initializing terminals, for example, the M5317TDX.
SPID	aaa...a <cr> Xaaa...a	Service profile ID aaa...a = any combination of one-20 alphanumeric characters. <cr> = Stops this prompt from being displayed again. A maximum of 8 valid SPIDs per TSP are allowed. This prompt appears only if USID = 1-15 (if 0 was entered for the USID, a SPID is not required). This SPID must be programmed in the initializing terminal to associate the terminal with a USID. Refer to the note which follows on page 61. Xaaa...a = removes the specified SPID.
...		

Note: The ISDN BRI terminal requires that Layer 2 and Layer 3 parameters be programmed at the terminal. When programming the SPID, the voice SPID and data SPID should each match the one entered in LD 27 when administering the TSP which contains the terminal's DN. Also, if the terminal has an option to select the standard protocol, select the NI-1 standard. Refer to your terminal documentation for complete instructions.

LD 27 – Configure the NI-1 protocol for a DSL.

Refer to the note above pertaining to selecting the NI-1 protocol on the ISDN BRI terminals.

Prompt	Response	Description
REQ	NEW CHG	Add a TSP. Change a TSP.
TYPE	DSL	Administer the DSL.
DSL	lll s cc dsl#	DSL location. For Options 51C-81C: lll (superloop) = 0-156 (must be a number divisible by 4) s (shelf) = 0-1 cc (card) = 0-15 dsl# (DSL location) = 0-7
...		
PRID	6	Defines the protocol to be used on the DSL. Enter 6 for NI-1. The values for this prompt are: 1=ANSI 2=ETSI 3=DMS 4=NET64 5=NUMERIS 6=NI-1
...		

Set-based ISDN BRI features on Meridian 1 ISDN BRI terminals

The following features are supported on M5317TDX terminals:

- AutoDial Keys (up to 9 keys each with 20 digit numbers)
- Inspect Key
- Data Port Configuration from the menu
- HandsFree
- Conference - Soft Key (recommended key #15)
- DiscData Soft key for Disconnecting Data Calls
- English/French Language Support
- Set based Ringing Patterns
- Set based Clock

The following features are supported on M5209TDcp terminals:

- Last Number Redial (invoked by ##)
- Set based Speed Call (Can store up to five 25 digit numbers)
- Store Number Redial (multiple keys)
- Conference (recommended key #9)
- DiscData Soft key for Disconnecting Data calls
- English/French Language Support
- Set based Ringing Patterns

Generic X11 features

ISDN BRI Lines

This section begins with a quick reference table (Table 2) of features with a column that indicates how this feature is supported by ISDN BRI lines. Reference to the notes at the end of the table provide some detail about the support of the feature.

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
— LEGEND — Yes = fully supported N/A = Not Applicable or transparent to ISDN BRI no = not supported due to ISDN BRI Standards limitations P = Partially support with description of limitation. Features labeled with "*" have a more detailed description later in this chapter The following notes are referenced in this table. Note 1: ISDN BRI Terminal can ONLY initiate calls to the user equipped with this feature. Note 2: ISDN BRI Terminal CAN NOT invoke this feature, however, the non-ISDN BRI calling party (calling a ISDN BRI user) will have access to this feature. Note 3: Feature is ISDN BRI Terminal dependent. Note 4: Automatic Number Identification, as used here, refers to the Hotel/Motel ANI feature. Please refer to "Calling Party Number" feature listed above for CLID. Note 5: Camp-on feature can not be invoked against an ISDN BRI Terminal. Note 6: Feature is not available to ISDN BRI user, however, ISDN BRI Terminal calling other non-ISDN BRI set equipped with this feature will receive appropriate call handling treatment. Note 7: ISDN BRI Terminal display, if equipped, will not be updated to reflect call modification. —A—		
Access Restrictions**	yes	See details later in this chapter
Access to Paging**	yes	See details later in this chapter
Access to Recorded Telephone Dictation**	yes	See details later in this chapter
ACD/CDR Q Record Option.	no	
ACD Night Call Forward without Disconnect Supervision	no	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Application Module	n/a	
ARIES Automatic Gain Control	n/a	
ARIES Handsfree Download	n/a	
Attendant Administration	no	
Attendant Alternative Answering**	P	See Note 1 and details later in this chapter
Attendant Barge-in	no	
Attendant Blocking of DN	no	
Attendant Break-in	no	
Attendant Busy Verify	no	
Attendant Call Party Name Display.	yes	
Attendant Call Selection	n/a	
Attendant Calls Waiting Indication	n/a	
Attendant consoles	no	
Attendant End-to-End Signaling**	yes	See details later in this chapter
Attendant Incoming Call Indicators	n/a	
Attendant Interpositional Transfer	n/a	
Attendant Lockout	n/a	
Attendant Overflow Position**	P	See Note 1 and details later in this chapter.
Attendant Overflow Position Busy	no	POS BUSY key not supported
Attendant Position Busy. See also Night Service	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Attendant Recall**	P	See Note 2 and details later in this chapter.
Attendant Release**	P	See details later in this chapter.
Attendant Secrecy	yes	
Attendant Splitting	yes	
Attendant Supervisory Console	n/a	
Attendant Trunk Group Busy Indication	n/a	
Audible Message Waiting	yes	See Note 3
Audible Reminder of Held Call	no	
Autodial	yes	See Note 3
Autodial with Authorization Code.	no	
Automatic Answerback	no	
Automatic Call Distribution**	P	See Note 1 and details later in this chapter.
Automatic Line Selection	yes	See Note 3
Automatic Number Identification	no	See Note 4
Automatic Number Identification on DTI	no	See Note 4
Automatic Preselection of Prime DN	yes	See Note 3
Automatic Redial	no	
Automatic Set Relocation	no	ISDN BRI does not support SPRE
Automatic Timed Reminders**	P	See Note 5 and details later in this chapter.
Automatic Trunk Maintenance	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Automatic Wake Up	no	
Auxiliary Processor Link	n/a	
Auxiliary Signaling	no	
— B —		
B-Channel Overload Control	no	
Background Terminal	no	
Barge-in	no	Not supported whenever a BRI terminal is involved
Basic Alternate Route Selection	yes	
Basic Authorization Codes	no	
Basic Call, North American ISDN PRI Connectivity**	yes	See details later in this chapter
Bridging	no	
Busy Lamp Field Array	no	
Buzz. See Manual Signaling (Buzz)	no	
— C —		
Call-Back Queuing	no	
Call-Back Queuing/Conventional Main.	no	
Call Detail Recording	yes	
Call Detail Recording Expansion	yes	
Call Detail Recording 100 Hour Call	no	
Call Detail Recording on Busy Tone	yes	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Call Detail Recording Outpulsed Digits	no	
Call Forward All Calls**	P	See details later in this chapter
Call Forward, Break-in and Hunt Internal or External Network Wide	no	
Call Forward Busy-	yes	See ISDN BRI Special Call For Busy
Call Forward External Deny	no	
Call Forward and Hunt by Call Type**	yes	See details later in this chapter
Call Forward/Hunt Override via FFC	no	
Call Forward No Answer**	yes	See details later in this chapter
Call Forward No Answer/ Flexible	yes	See Note 7
Call Forward/Save on Dump	no	
CFNA, Second Level for MWA stations	yes	See Note 7
Call Forward No Answer, Second Level	yes	See Note 7
Call Hold**	yes	See details later in this chapter
Call Hold, Deluxe	no	
Call Hold, Individual Hold Enhancement		
Call Hold, Permanent	n/a	
Calling line identification**	P	See details later in this chapter
Calling line identification presentation	yes	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Calling line identification restriction	yes	See details later in this chapter
Call Park**	P	See details later in this chapter
Call Park on Unsupervised Trunks	no	
Call Party Name Display**	P	See details later in this chapter
Call Pickup	no	SPRE codes not supported
Call Pickup, Directed	no	
Call Pickup Network Wide	no	
Call Selection	n/a	
Call Splitting	yes	
Call Status Indication	n/a	
Call Transfer**	P	See Note 2 and details later in this chapter
Call Waiting/Internal Call Waiting**	yes/yes	See details later in this chapter
Called Party Disconnect Control**	P	See details later in this chapter
Calling Line Identification**	P	See details later in this chapter
Calling Line Identification Presentation and Restriction**	yes	See details later in this chapter
Calling Party Number	yes	
Calling Party Privacy	no	
Call Page Network Wide	yes	
Call Park Network Wide	no	
Charge Account and Calling Party No	yes	See Note 1
Calls Waiting Indication (Attendant)	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
CAMA Trunks	no	
Camp-on	no	Calls are always by call waiting or special hunting
Capacity Expansion	yes	
Centrex Switchhook Flash	no	
Code Restriction	yes	
Charge Account and Calling Party Number **	P	See details later in this chapter
Charge Account, Forced	no	
CLASS: Calling Number and Name Delivery	no	
Class of Service	yes	
CO Trunk Priority Option - Call Pickup	no	
Conference	no	See Note 2
Conference Control	n/a	
Console Digit Display	n/a	
Console Presentation Group Level Services	no	Multi-tenant services are required and are not supported
Control of Trunk Group Access	n/a	
Controlled Class Of Service	no	
Controlled Class of Service, Enhanced	no	
Coordinated Dialing Plan	yes	
Coordinated Call-Back Queuing	no	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Coordinated Call-Back Queuing - Main	no	
— D —		
Data access via Data Modules	P	See Note 2
Data Port Hunting	yes	
Data, Circuit Switched**	yes	See details later in this chapter
Data, Packet**	yes	See details later in this chapter
Deluxe Hold	no	
Departmental Listed Directory Number (LDN)**	yes	See details later in this chapter
Dial Access to Group Call	no	
Dial Intercom	no	No DIG key on BRI terminals
Dial Pulse/Dual Tone Multifrequency Conversion	n/a	
Digit Display	yes	See Note 7
Digital Trunk Interface	yes	
Direct Inward System Access	yes	ISDN BRI terminals can be dialed through DISA
Directed Call Pickup	no	
Directory Number	yes	
Directory Number Expansion**	yes	See details later in this chapter
Display of Calling Party Denied	no	
Distinctive/New Distinctive Ringing	no	
Distinctive Ringing for Dial Intercom	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Dialed Number Identification Service	P	See Note 7
Do Not Disturb**	yes	See details later in this chapter
DSN Station Loop Preemption	no	
Dual Value Added Server Identification	n/a	
— E —		
E.164/ESN Numbering Plan Expansion	yes	
Electronic Switched Network	yes	
End-to-End Signaling	yes	
Enhanced Controlled Class of Service	no	
Enhanced End-to-End Signaling	yes	
Enhanced Flexible Hot Line**	P	See Note 2
Enhanced Music	yes	
Enhanced Night Service	no	
Enhanced 911 Interface	no	
Electronic Lock Network Wide/Electronic Lock on Private Lines	no	
Emergency Services Access	yes	
Equal Access Compliance	yes	
ESN Queuing	no	
EuroISDN Continuation**	P	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
EuroISDN Continuation Phase III**	P	Same as above
EuroISDN Master Mode	yes	
EuroISDN Malicious Call ID	no	
Exclusive Hold	no	
— F —		
Fast Tone Digit Switch	n/a	
FCC Compliance for DID Ans. Super.	n/a	
Flexible Attendant DN	n/a	
Flexible Call Forward No Answer	yes	
Flexible ESN "0" Routing	yes	
Flexible Hot Line.	P	See Note 2
Flexible Feature Codes	no	
Flexible Line Lockout	no	
Flexible Numbering Plan	no	
Flexible Numbering Plan Enhancement	no	
Flexible Orbit Prevention Timer	yes	
Flexible Tones and Cadences	no	
Forced Charge Account	no	
— G —		
Global CDR Record	no	
Group Call	no	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Group Hunt**	p	See details later in this chapter
Guest Entry of Automatic Wake Up	no	
— H —		
History File	yes	
Hot Line	P	See Note 2
Hold	yes	Not supported by 1TR6 protocol
Hospitality Screen Enhancements	no	
Hotel/Motel features —	no	BRI Terminals NOT supported as room telephones
— Automatic Wake-Up	no	
— Background Terminal	no	
— Controlled Class of Service	no	
— Maid ID	no	
— Property Mgmt. Sys. Interface	no	
— Room Service	no	
Hunting	yes	See ISDN BRI Special Hunting
— I , J —		
IMS/VMS**	P	See details later in this chapter
In-Band ANI	n/a	
Incoming DID Digit Conversion**	P	See Note 7 and details later in this chapter
Incoming Trunk Programmable CLID	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Incremental Software Management**	yes	See details later in this chapter
Incoming Call Indicators	n/a	
Incoming Trunk Group Exclusion	n/a	
Individual Hold	no	
Inspect key	yes	See Note 3
Integrated Messaging System Link	P	See IMS/IVMS
Integrated Voice and Data	yes	
Intercept Treatment**	yes	See details later in this chapter
Internal Call Detail Recording	yes	
Internal Call Waiting	yes	
Interpositional Transfer	n/a	
ISDN Application Protocol	no	
ISDN Call Connection Limitations	yes	
ISDN BRI calls to MCA/MCU	yes	
ISDN BRI Circuit- Switched Data Call Accessing DTI Trunk**	P	See details later in this chapter
ISDN BRI Connected Line Presentation/Restriction	yes	
ISDN BRI to ISDN BRI Circuit-Switched Data Call**	yes	See details later in this chapter
ISDN BRI Circuit-Switched Data Call over PRI**	yes	See details later in this chapter
ISDN BRI Circuit- Switched Data Call for Tandem**	P	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
ISDN BRI Network Ring Again**	P	See details later in this chapter
ISDN NI-1 BRI Compliance Enhancements	yes	
ISDN BRI Special Call Forward Busy**	yes	See details later in this chapter
ISDN BRI Special Hunting**	yes	See details later in this chapter
ISDN Calling Line Identification Enhancements	yes	
ISDN QSIG Basic Call	no	
ISDN QSIG/EuroISDN Call Completion	no	
ISDN QSIG Call Diversion Notification	yes	
ISDN QSIG Generic Functional Transport	no	
ISDN QSIG Name Display**	P	See details later in this chapter
ISDN QSIG Path Replacement	no	
ISDN Semi-permanent Connection for Australia	no	
Japan TTC Common Channel Signaling	no	
— L —		
Last Number Redial	yes	See Note 3
Limited Access to Overlays	yes	
Line Load Control	no	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Line Lockout	no	For BRI terminals, when the protocol timer times out and insufficient call information is received, the MISP will clear the call
Listed Directory Numbers	n/a	
Lockout	n/a	
— M —		
Maid Identification	no	
Maintenance Telephone	no	
Make Set Busy	no	
Make Set Busy Enhancement	no	
Malicious Call Trace**	P	See Note 2 and details later in this chapter
Manual Line Service	n/a	
Manual Signaling (Buzz)	no	
Meridian Communications Adapter (MCA) Data Module**	P	See details later in this chapter
Manual Trunk Service	yes	
Meridian 1 Attendant Console Enhancements	n/a	
Meridian Hospitality Voice Services	no	
Meridian MAX	n/a	
Meridian Mail	yes	Audible Indication
Meridian Mail Trunk Access Restriction**	P	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Message Center**	P	See details later in this chapter
Message Registration	no	
Message Waiting Lamp Maintenance	no	
Message Waiting (Meridian Mail)**	yes	See Note 3 and details later in this chapter
Modem Trunk Hunting	no	
Multiple Appearance Directory Number (DN)**	P	On the same DSL ONLY. See details later in this chapter
Multiple Appearance Redirection Prime	no	
Multi-Language Wake Up	no	
Multi-Party Operation**	p	See details later in this chapter
Multiple-Customer Operation	yes	
Multiple-Console Operation	n/a	
Multiple DID Office Code Screening	n/a	
Multiple-Tenant Service	no	
Music	yes	
Music Broadcast	no	
Music, Enhanced	yes	
Music on Hold**	yes	See details later in this chapter
— N —		
Network Automatic Call Distribution	P	See Note 1
Network Alternate Route Selection**	yes	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Network Attendant Service**	p	See details later in this chapter
Network Authorization Codes	no	SPRE codes are not supported
Network Call Transfer**	P	See Note 2 and details later in this chapter
Network Call Redirection Service**	P	See details later in this chapter
Network Call Trace and Call Diagnostics	no	SPRE codes are not supported
Network Class of Service**	yes	See details later in this chapter
Network Intercom	no	
Network Message Center	P	See Message Center
Network Message Services(Meridian Mail)	yes	
Network Call Party Name Display	P	Same comment as CPND above
Network Signaling	yes	
Network Signaling for Network ACD**	P	See details later in this chapter
Network Signaling on VNS	no	
Network Speed Call	P	See Note 2
Network Traffic	n/a	
New Distinctive Ringing	no	
New Flexible Code Restriction	yes	
NI-2 Call By Call Service Selection	no	
Night Key for DID Digit Manipulation	no	
Night Service/TAFAS**	P	See Note 1 and details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Night Service by Time of Day	P	See Note 6
No Hold Conference	P	See Note 2
NPI and TON in CDR tickets	no	
— O —		
Off-Hook Alarm Security	no	For BRI terminals, when the protocol timer times out and insufficient call information is received, the MISP will clear the call
Off-Hook Queuing	no	
Off-Net Number Recognition	yes	
Off-Premise Extension	n/a	OPX — applicable to analog sets only
Office Data Administration System	no	
On-Hook Dialing	yes	See Note 3
Option 11 Set based installation	no	
Optional Outpulsing Delay	n	
Optional Privacy	no	
Outgoing Trunk Hunting	n/a	
Overflow Tone	yes	
Overlay Cache Memory	yes	
Override	no	
Outpulsing of Asterisk and pound**	yes	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
— P —		
Packet Switched Data Service	yes	Supported for both B and D channels
Paging	yes	
Permanent Hold	n/a	
Position Busy	n/a	
Pretranslation**	yes	See details later in this chapter
Pretranslation and System Speed Call Enhancement	no	
Prime DN	n/a	
Priority Override**	p	See details later in this chapter
Privacy	no	
Privacy Override	no	
Privacy Release	no	
Private Line Service	no	
Property Management System Interface	no	
Packet Switched Data Service	yes	Supported for both B and D channels
— R —		
Radio Paging Product Improvement	no	
Recall (Attendant)**	P	See Note 2 and see details later in this chapter
Recall After Parking	no	
Recall to Same Attendant**	P	See details later in this chapter

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Recorded Announcement**	yes	See details later in this chapter
Recorded Announcement Broadcast	no	
Recorded Overflow Announcement	yes	
Recorded Telephone Dictation	yes	
Recovery on Misoperation at the Attendant Console	no	
Remote Call Forward	no	
Remote Peripheral Equipment	no	
Remote Virtual Queuing	no	
Restricted Call Transfer	no	
Ring Again	no	
Ring Again on No Answer	no	
Ringing Number Pickup	no	
Room Status	no	
Round Robin Trunk Hunting	n/a	
— S —		
7 Digit DNIS for MAX	n/a	
Schedule Access Restriction	no	
Secrecy (Attendant)	yes	
Secretarial Filtering	no	
Selectable Coferee Display and Disconnect	no	
Short Buzz for digital sets	n/a	

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Signal source and destination	no	
Single Appearance DN	yes	
Six Party Conference for 2500 Sets	yes	See Note 3
Software Capacity Expansion	yes	
Special Dial Tone	P	Message Waiting Indication
Special Service prefix (SPRE)	no	
Speed Call	P	See Note 2
Speed Call with Authorization Codes	no	
Speed Call, System	no	
Splitting** (See Attendant Splitting)	yes	See details later in this chapter
Station Category Indication	no	
Station Hunting--see ISDN BRI special hunting	yes	
Station Loop Preemption	no	
Station Camp-on	no	
Station-to Station-Calling	yes	
Station to Station Call Waiting	yes	
Stored Number Redial	yes	See Note 3
Supervisory Attendant Console	n/a	
System Capacity Expansion	yes	
Switched 56 Kbps Service**	P	See details later in this chapter
— T —		

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Time and Date	yes	See Note 3
Time Forced Disconnect** (See Paging)	yes	See details later in this chapter
Tones, Flexible Incoming	no	
Transfer**	P	See Note 2 and details for <i>Call transfer</i> later in this chapter
Trunk Answer From Any Station	no	
Trunk Anti-Tromboning	no	
Trunk Barring	yes	
Trunk Group Access Restrictions (TGAR)	yes	
Trunk Group Busy Keys/Indication**	yes	See details later in this chapter
Trunk Hunting	n/a	
Trunk to Trunk Connection	no	
Trunk Signaling Arrangements	n/a	
Trunk Verification from a Station	no	SPRE codes are not supported
— U —		
Uninterrupted Line Connections	no	
Uniform Dialing plan	yes	
— V —		
Voice Call	yes	See Note 3

Table 2
Feature Interactions - ISDN BRI Lines

Features and services	Supported	Comments
Virtual Network Services	yes	
Virtual Network Services in the UK with DASS2/DPNSS1 Bearers	no	
Virtual Network Services Virtual DN Expansion	no	
VIP Wake up.	no	See Automatic Wake Up

The following sections list the Option 11 features that are tagged in the above table with a “**”. These descriptions provide further details of the interaction of the feature with ISDN BRI

Features supported by ISDN BRI as a Line

The following descriptions provide additional information for the features tagged with “**” in Table 2.

Access Restrictions

Access restriction for an ISDN BRI terminal is based on assigned class of service, trunk group access restriction, and area and exchange codes dialed by the terminal.

Class-of-service and trunk group access restriction for an ISDN BRI terminal are defined when configuring DSL using Service Change ISDN BRI Program LD 27.

The same access restrictions apply to all voice and data ISDN BRI DN's defined for a DSL.

Access to Paging

An ISDN BRI terminal can access paging equipment by dialing a paging trunk access code. End-to-end signaling must be provided by the ISDN BRI terminal.

Access to Recorded Telephone Dictation

An ISDN BRI terminal can access dictation equipment by dialing an equipment access code. End-to-end signaling must be provided by the ISDN BRI terminal.

Attendant End-to-End Signaling

This feature is supported for ISDN BRI terminals where the attendant can signal to an ISDN BRI terminal and an ISDN BRI terminal can dial the attendant and request access to services requiring end-to-end signaling.

Call Forward and Hunt by Call Type

This feature is supported for calls originated by an ISDN BRI terminal and calls terminated to an ISDN BRI terminal when a call encounters a no answer or busy condition. This feature is activated for a call terminating to an ISDN BRI DN, which has call forward no answer, or ISDN BRI special hunting enabled.

An internal and external hunt and call forward no answer DN can be defined for a DSL using Service Change ISDN BRI Program LD 27. An ISDN BRI DN can also be defined as an internal or external call forward no answer and hunt DN.

Call Forward No Answer

This feature is supported for calls originated by an ISDN BRI terminal and calls terminated at an ISDN BRI terminal. Internal and external call forward no answer DNs are defined in the DSL, and call forward no answer enable and call forward by call type are defined for ISDN BRI DNs in the TSP using Service Change ISDN BRI Program LD 27.

An ISDN BRI DN can be defined as a call forward no answer DN allowing the features available on the ISDN BRI terminal to control the call.

Call forward no answer and second level call forward no answer are activated if **FNA** and **SFA** are selected for a DN when configuring the TSP using Service Change ISDN BRI Program LD 27. If a call is not answered after a predetermined timer expires, the initial call setup is released from the DSL and call forward no answer routes the call to an alternate DN.

An ISDN BRI terminal originating the call is not updated to show on its display that the call was redirected to a different DN as a result of call forward no answer. This is due to lack of standard for layer 3 messages used to update the ISDN BRI terminal display

Call Hold (not supported by 1TR6 protocol)

This feature is activated by pressing the Hold key on the terminal. This feature allows an ISDN BRI terminal to place an active call on hold to accept or originate another call. You can dial a new call and go back to the call on hold.

An ISDN BRI terminal can place an ISDN BRI or non-ISDN BRI terminal on hold.

Deluxe hold and permanent hold do not apply to an ISDN BRI terminal, however a non-ISDN BRI terminal can place an ISDN BRI terminal in deluxe hold or permanent hold.

Call Waiting

This feature alerts a busy ISDN BRI terminal that a call is waiting to be answered. To answer a waiting call, the ISDN BRI terminal must place the active call on hold or release the active call. If the ISDN BRI terminal user tries to answer a call waiting call when no B-channel is available, the call is released from the ISDN BRI terminal and extended to the attendant.

When both B-channels on a DSL are busy, an incoming call is presented to the DSL as call waiting as long as the number of calls on this DSL does not exceed the maximum number of calls specified, which include active calls, calls waiting, and calls on hold. This maximum number of simultaneous calls allowed is specified when configuring the DSL using Service Change ISDN BRI Program LD 27.

A call waiting from an ISDN BRI terminal is presented to a non-ISDN BRI terminal as a normal call waiting call.

Call waiting for a call terminating at a DSL will be activated only if do-not-disturb and hunting for this DSL are not enabled or fail to handle the call. ISDN BRI call waiting is subject to call forward no answer as defined in the Meridian 1.

Departmental LDN

This feature allows specified terminals to share the same numbering plan and to access the attendant console or consoles dedicated to a departmental LDN.

Directory Number Expansion

ISDN BRI terminal DNs can be increased from a maximum length of four digits to a maximum length of seven digits when the DN Expansion option is equipped.

Do-Not-Disturb

The attendant can place an ISDN BRI DN in do-not-disturb mode, which allows the terminal to make outgoing calls but it makes it look busy to incoming calls.

Incremental Software Management

Software pricing is implemented based on the number of ISDN BRI DSLs (United States only).

Intercept Treatment

A call originated by an ISDN BRI terminal that is intercepted can be routed to the attendant, given a busy tone, given an overflow tone, or routed to a recorded announcement. There is no special treatment for ISDN BRI terminals.

Message Waiting (Meridian Mail)

This feature is supported by ISDN BRI terminals if this feature is enabled for an ISDN BRI DN when configuring the TSP using Service Change ISDN BRI Program LD 27. Audible message is supported, however visual message display indicator is not supported due to lack of standards for layer 3 messages.

When an ISDN BRI terminal with an active message waiting initiates a call, the system replaces the standard dial tone with a message waiting tone to alert the user that a message is waiting. If a terminal cannot get a dial tone, it also cannot get a message waiting tone.

A call terminating at an ISDN BRI DN can be redirected to Meridian Mail or Network Message Services-Meridian Mail (NMS-MM) through call forward no answer. A call originating from an ISDN BRI terminal to a non-ISDN BRI terminal can also be redirected to Meridian Mail or NMS-MM through call redirection on the non-ISDN BRI terminal.

An ISDN BRI terminal can access the mailbox and retrieve its messages by dialing Meridian Mail or NMS-MM DN. An ISDN BRI terminal does not have a message waiting or conference key.

An ISDN BRI terminal connected to Meridian Mail or NMS-MM cannot use Call Sender feature.

Message waiting forward busy redirects a DID call from a busy DSL interface to Meridian Mail or NMS-MM through FDN defined for a DSL. This feature is enabled on a customer basis for an ISDN BRI DN by setting call forward busy allowed and message waiting allowed class of services when configuring the TSP using Service Change ISDN BRI Program LD 27.

Music on Hold

ISDN BRI terminals on hold and terminals placed on hold by an ISDN BRI terminal can receive music if so configured. An ISDN BRI terminal can also access a music trunk by dialing the route access code.

Pretranslation

An ISDN BRI DN can be assigned to a first digit pretranslation group.

The first digit dialed on an ISDN BRI terminal can be pretranslated into a DN while making a call.

Pretranslation is configured for a DSL therefore all DNs for a DSL are assigned to the same pretranslation group.

An ISDN BRI DN can also be assigned as a translated DN in a pretranslation group's speed call list.

Recorded Announcement

An ISDN BRI terminal can be connected to a recorded announcement machine by an intercept condition, by the attendant, by an ACD agent, or by direct access to a recorded announcement machine.

Departmental listed directory number groupings are supported for ISDN BRI and are configured for a DSL using Service Change ISDN BRI Program LD 27. This allows assignment of a DSL to one of the four listed directory number groups. All DNs for a DSL are assigned to the same departmental LDN.

Network Alternate Route Selection

ISDN BRI terminals can have the following networking capabilities: simple network access codes, uniform dialing plan, digit manipulation, automatic least-cost routing, time-of-day routing, automatic on-net to off-net overflow, network control through network class of service, traveling class of service and facility restriction level, routing control through network class of service based on time-of-day schedule, 11 digit translation, free calling area screening, expensive route warning tone, network call detail recording, and network speed dial.

Network Class of Service

An ISDN BRI DSL can be assigned a network class of service to control access to routes, ability to receive expensive route warning tone, and ability to access network speed dial. All DN's for a DSL are assigned to the same NCOS.

Outpulsing of Asterisk and Pound

Routes can be dedicated for the outpulsing of asterisks (*) and pound (#) when an ISDN BRI terminal is making a trunk call.

Splitting

The attendant selectively talks to either party of an established call made by an ISDN BRI terminal by excluding one party from the conversation or the other using the Exclude Source or Exclude Destination key.

Timed Forced Disconnect

An ISDN BRI terminal is disconnected if it uses the paging trunk longer than a preset time.

Trunk Group Busy Keys/Indication

When all trunks in a trunk group or its hunting groups are busy, a user-selectable tone is returned to the calling ISDN BRI terminal.

Features partially supported by ISDN BRI as a line

The following descriptions provide additional information for the features tagged with **: in Table 2.

Attendant Alternative Answering

An ISDN BRI DN cannot be assigned as an attendant alternative answering DN. Calls originating from an ISDN BRI terminal can be forwarded to an attendant alternative answering DN defined for the attendant console when the attendant does not answer the call. The originating ISDN BRI terminal display is not updated.

Attendant Overflow Position

An ISDN BRI DN cannot be assigned as an attendant overflow position DN. Calls originated by ISDN BRI terminals can be automatically routed to a predefined DN, however, the terminal display will not be updated to show the call modification.

Attendant Recall

An ISDN BRI terminal communicating with a non-ISDN BRI terminal is recalled to the attendant as the source party if the recall is initiated by the non-ISDN BRI terminal. An ISDN BRI terminal cannot initiate an attendant recall.

Attendant Release

The attendant has no control over disconnection of an ISDN BRI terminal if the call is with another ISDN BRI terminal. The ISDN BRI terminal can release the call even if the attendant has not pressed the Release key.

Automatic Timed Reminders

A call made by an ISDN BRI terminal can be extended by the attendant to an ISDN BRI or non-ISDN BRI terminal and timed for slow answer or call waiting recall. When the timer expires, the call is recalled to the attendant.

Camp-on recall is not supported by the ISDN BRI DN.

Automatic Call Distribution

An ISDN BRI terminal cannot be an ACD agent terminal, however, an ISDN BRI terminal can place a call to an ACD agent.

ISDN BRI Circuit- Switched Data Call Accessing DTI Trunk

ISDN BRI circuit-switched data call can access a DTI trunk only if the bearer capability is a 56 kbps. ISDN BRI terminals using V.120 protocol at 56 kbps are not supported.

ISDN BRI Circuit- Switched Data Call for Tandem

Tandem data calls over PRI and DTI trunks using ISDN BRI terminals are supported only for the terminals that use T-Link protocol. Meridian 1 verifies that the bearer capability IE contains a codepoint supported by ISDN PRI. If the information sent to the far end is incomplete, the call may be sent to an incompatible terminal causing the call to be dropped.

Call Forward All Calls

An ISDN BRI terminal does not support call forward all calls. Calls originating from an ISDN BRI terminal can be forwarded if call forwarding is activated by a non-ISDN BRI terminal. The calling ISDN BRI terminal display is not updated to show the call change. An ISDN BRI DN can also be defined as a call forward DN.

Call Park

An ISDN BRI terminal cannot be parked nor can it park a call, however it can retrieve a parked call through a system park DN. An ISDN BRI DN can be used as a station park DN.

Call Party Name Display

Names are not displayed on ISDN BRI terminals, however, a name for an ISDN BRI DN can be defined using Calling Party Name Display Program LD 95 to allow a non-ISDN BRI terminal with display to identify the ISDN BRI terminal that originated the call. This name can be transmitted across ISDN PRI network.

Called Party Disconnect Control

A disconnect signal from an incoming trunk call to an ISDN BRI terminal is ignored by the terminal.

A call originating from an ISDN BRI terminal and to an outgoing trunk can be disconnected from either end.

Call Transfer

An ISDN BRI terminal can be transferred by a non-ISDN BRI terminal and a non-ISDN BRI terminal can transfer a call to an ISDN BRI terminal. In either case, the ISDN BRI terminal display is not updated to indicate call modification.

Calling Line Identification

Calling line identification is sent across ISDN PRI to and/or from ISDN BRI terminals. Trunk access code is displayed at the called ISDN BRI terminal instead of the calling line identification if it has calling party number restricted.

If a network call is redirected the calling line identification is not updated.

Charge Account/ Calling Party Number

Charge account cannot be activated by an ISDN BRI terminal, however, a non-ISDN BRI terminal communicating with an ISDN BRI terminal can activate charge account and enter an ISDN BRI DN as the calling party number to be included in the call detail recording report.

Enhanced Flexible Hotline

Hotline is not available on an ISDN BRI terminal, however, an ISDN BRI DN can be defined as a hotline number.

EuroISDN Continuation

As part of this feature, the Calling Line Identification and Connected Line Identification transparency to or from EuroISDN to or from a Basic Rate Interface (BRI) set is provided.

For Connected Line Identification Presentation (COLP) supplementary service, sending or restricting connected line identification is not supported on ISDN BRI sets on a per call basis.

Group Hunt

Group Hunt is partially supported on ISDN BRI terminals, as explained below:

- an ISDN BRI terminal cannot be a member of a group hunt list, due to lack of support of FFC (Group Hunt Deactivation is not possible);
- an ISDN BRI terminal cannot access a group hunt list, since FFCs are not supported;
- a call from an ISDN BRI terminal to another ISDN BRI terminal may be hunted, or call forwarded no answer, to a Group Hunt Pilot DN FFC.

Incoming DID Digit Conversion

An ISDN BRI DN can be defined as the converted DN, however, the dialed number identification service number will not be displayed on an ISDN BRI terminal.

IMS/IVMS

Calls originated from an ISDN BRI terminal may be redirected to IMS/IVMS and leave a text or voice message for the called party.

For voice messages, an ISDN BRI terminal that can generate end-to-end signaling can access other options available.

Calls terminated on an ISDN BRI terminal may be redirected to IMS/IVMS through call forward no answer or hunting, but the ISDN BRI DN will not have a mailbox defined and a caller may not leave a message for an ISDN BRI DN.

ISDN BRI Network Ring Again

The Network Ring Again feature cannot be activated from nor offered to an ISDN BRI terminal due to a lack of standardized functional protocol for supporting the feature. For non-ISDN terminals encountering a busy ISDN BRI terminal, the Network Ring Again feature is not offered to the non-ISDN terminals for the same reason.

ISDN QSIG Name Display

Calling Party Privacy (CPP) Flexible Feature Code is not supported on BRI sets. Therefore, Calling/Connected Name Identification Restriction on a per-call basis is not supported on BRI sets.

Malicious Call Trace

An ISDN BRI terminal cannot activate malicious call trace. A non-ISDN BRI terminal can activate malicious call trace on a call connected to an ISDN BRI terminal.

Meridian Mail Trunk Access Restriction

This feature does not support Call transfer from ISDN BRI sets.

Message Center

A call originating by an ISDN BRI terminal to a non-ISDN BRI terminal may be redirected to Network Message Service - Message Center. The associated MIK/MCK and the lamp states are not supported for the corresponding ISDN BRI terminal.

Meridian Communications Adapter/Unit (MCA/MCU) Data Module

ISDN BRI terminals that support T-Link protocol can complete calls to MMPO Data Module that are in T-Link mode. MCA/MCU supports 64 kbps clear, 64 kbps restricted, and 56 kbps restricted bearer capabilities.

Multiple Appearance Directory Number

Multiple ISDN BRI terminals on the same DSL can have the same DN. An ISDN BRI and a non-ISDN BRI terminal cannot have the same DN.

ISDN BRI multiple appearance DN is not allowed across different DSLs and is also not allowed for non-ISDN BRI terminals.

Multi-Party Operations

Call Join

The Call Join feature allows a controlling party to conference-in or transfer an active party to a held party. The controlling party can then hang up. The controlling party's terminal must be equipped with a Conference 3/6 key, and at least one secondary DN or Call Waiting key.

ISDN BRI terminals cannot be the controlling party, since the Conference feature is not supported for ISDN BRI. If the ISDN BRI terminal is the active party or held party, the Call Join feature is supported as described; however, the ISDN BRI terminal display is not updated.

Three-Party Service

The Three Party Service feature allows a user of a 500/2500 terminal with Three Party Service Allowed (TSA) COS to toggle between an active party and a held party on an ISDN BRI terminal, through the use of the Call Hold feature. However, a three party conference cannot be formed.

AN ISDN BRI terminal may be placed on hold or placed in a three party conference by a controlling terminal that is a non-ISDN BRI terminal; however, the ISDN BRI terminal display is not updated.

Conference 6

The Conference 6 feature is an extension of Three-party service, allowing users of 500/2500 telephones, with TSA and C6A COS, the added capability of establishing a conference of up to six parties.

AN ISDN BRI terminal may be placed in a six party conference by a controlling terminal that is a non-ISDN BRI terminal; however, the ISDN BRI terminal display is not updated.

Recovery of Misoperation on Call Transfer

The Recovery of Misoperation of Call Transfer feature prevents external calls from being dropped due to misoperation of the Call Transfer feature. Optional treatments of a misoperation may be configured on a customer basis.

Recovery of Misoperation of Call Transfer is not available on ISDN BRI terminals. If the controlling station misoperates on a transfer of a call originating from an ISDN BRI terminal, the call receives the configured misoperation treatment; however, the ISDN BRI terminal display is not updated.

Network Signaling for Network ACD

ISDN BRI terminals cannot be configured as network ACD DN's, however, ISDN BRI terminals can make calls to the network ACD DN's.

Network Call Redirection Service

ISDN PRI redirection for ISDN BRI terminals is:

- ISDN BRI terminals may be redirected across the PRI network, however, the terminal will not be notified about the redirection.
- ISDN BRI terminals may redirect a PRI call using hunting and call forward no answer. It may also redirect a call across PRI the same way.

Network Attendant Service

Network Attendant Service (NAS) provides the capability of stand alone attendant service, full or part time, across a Meridian 1 network.

NAS provides the following attendant features network wide:

- attendant routing, which allows calls to an attendant to be routed to any other destination within the network;
- night service;
- call extension, which allows calls to an attendant to be extended across a network;
- timed reminder recall, which allows unanswered calls to be recalled to the attendant. When the attendant extends a call to a destination at another node, the trunks are not released. This prevents call disconnection and gives the attendant control of the call, including the ability to exclude the source or destination;
- incoming call indication, which is received when a call reaches the attendant via NAS routing;
- Camp-on and Call Waiting;
- Break-in;

- attendant control, which gives the attendant control of the call, including control of disconnecting the call and the ability to exclude the source or destination;
- ring held party, which allows the attendant console to receive ringing if a terminal that originated a call to the attendant disconnects while attendant control is configured;
- attendant display of Calling Line Identification (CLID), which allows the CLID of the calling party to be displayed on the attendant console.

These feature are supported transparently for ISDN BRI, with the following exceptions:

- Camp-on;
- Break-in;
- network wide attendant control; when an ISDN BRI terminal disconnects from an attendant extended call, the call is released on the ISDN BRI side;
- ring held party; when an ISDN BRI terminal disconnects from an attendant extended call, the call is released on the ISDN BRI side.

The displays on ISDN BRI terminals are never updated

Network Call Transfer

An ISDN BRI terminal cannot transfer a call, but a call originating from an ISDN BRI terminal can be transferred to an ISDN BRI or a non-ISDN BRI terminal. The display on the ISDN BRI terminal will not be updated.

Night Service/TAFAS

A call originated by an ISDN BRI terminal to an attendant console in night service will be routed through a customer night DN. The display on the ISDN BRI terminal will not be updated to show call redirection.

Priority Override

Priority Override is partially supported on ISDN BRI terminals, as explained below:

- Priority Override to an ISDN BRI terminal is not possible, because Priority Override require Warning Tone Allowed Class of Service (ISDN BRI terminals are defaulted to WTD COS);

- Priority Override from an ISDN BRI terminal is not possible because feature keys and FFC are not supported for ISDN BRI.

Recall to Same Attendant

This feature is supported transparently; however, the displays on ISDN BRI terminals are not updated.

Switched 56 kbps Service

An ISDN BRI terminal can use switched 56 kbps service if a data route has been previously established or the ISDN BRI terminal can generate a 2100 Hz tone to the network. This 2100 Hz tone disables echo cancellation that is provided by the equal access carriers.

ISDN BRI Trunk Access features

All features and services supported by ISDN PRI are also supported by ISDN BRI. The following exceptions apply:

Automatic Redial

Not supported.

Automatic Trunk Maintenance

Not supported.

Backup D-channel

Not supported.

Call Forward, Break-In and Hunt Internal or External Network Wide

Not supported.

Channel negotiation

The channel negotiation capability applies at the DSL level. If channel negotiation fails on a route with several ISDN BRI trunks (several DSLs) there is no second call attempt on another DSL in the same route.

Digital Private Network Signaling (DPNSS)

ISDN BRI supports a gateway between IDA (DPNSS version of PRI) and MCDN protocols for basic call features. Ring again features are not supported.

Display of Calling Party Denied

Not supported.

ISDN Semi Permanent Connections for Australia

Not supported.

ISDN Signaling Link (ISL)

Not supported.

Integrated Services Access (ISA)

Not supported.

Meridian Mail Trunk Access Restriction

The Meridian Mail Trunk Access Restriction (MTAR) feature prevents direct or indirect call transfer or conference of external calls to Meridian Mail. In this feature, external calls are defined as incoming/outgoing trunk calls that originate or terminate outside a private network.

The following Operating parameters apply:

- Call transfer from ISDN Basic Rate Interface (BRI) set is not supported.
- For a No Hold Conference operation from an ISDN BRI set, when Meridian Mail Trunk Access Restriction is enabled, direct or indirect no hold conference to an external call is permitted. During direct or indirect no hold conference, the calling party is never put on hold.

- Set A is a Meridian 1 proprietary set or an ISDN BRI set with a No Hold Conference Key configured as either No Hold Conference, Conference Autodial, Conference Speed or Conference Hotline.
 - An incoming/outgoing external call is established between Set A and Set B, an external party. The call between Set A and Set B is active on Key X.
 - Set A presses the No Hold Conference Key.
 - Set A dials Set C. Set C has either Call Forward All Calls to Meridian Mail enabled or is a Meridian Mail DN.
 - The conference is set up as normal. However a two party connection between Set B, an external party, and Meridian Mail is not allowed if the call controller releases. If this occurs, the connection between the trunk and Meridian Mail party is dropped.

Trunk Anti-Tromboning

Supported only over Virtual Network Services BRI bearer trunks.

Trunk to Trunk Connection

Not supported.

Virtual Networking Services (VNS)

VNS takes advantage of ISDN signaling through a private D-channel using the Public Exchange voice connections instead of TIE trunk connections. It is not possible to configure a D-channel of an ISDN BRI Trunk Access as a VNS D-channel. However, the voice connection through the Public Exchange of a VNS call may use an ISDN BRI Local Exchange trunk. Also, Trunk Anti-Tromboning is supported on VNS BRI trunks.

Virtual Networking Services (VNS) DN Expansion

Same as above.

ISDN PRI features interaction with ISDN BRI

Features not supported

The following ISDN PRI specific features are not supported by ISDN BRI:

- 1.5/2.0 Mb gateway
- 2 Mb gateway

- Automatic Trunk Maintenance
- Backup D-channel
- Channel negotiation - The channel negotiation capability applies at the DSL level. If channel negotiation fails on a route with several ISDN BRI trunks (several DSLs) there is no second call attempt on another DSL in the same route.
- Digital Private Network Signaling No. 1 (DPNSS 1) - ISDN BRI supports a gateway between IDA (DPNSS1 version of PRI) and MCDN protocols for basic call features. Ring again features are not supported.
- In Service Messaging
- Integrated Service Access (ISA)
- ISDN Primary Rate Access Meridian 1 to AXE-10 Sweden Connectivity
- ISDN Primary Rate Access Meridian 1 to AXE-10 Australia Connectivity
- ISDN Primary Rate Access Meridian 1 to SYS-12 Connectivity
- Integrated Service Digital Network Signaling Link (ISL)
- Non-Associated Signaling Channels (nB+D)
- Trunk Anti-tromboning - supported only over Virtual Network Services BRI trunks
- Trunk Optimization (SL-1 to SL-1 only)
- Virtual Network Services - VNS takes advantage of ISDN signaling through a private D-channel using the Public Exchange voice connections instead of TIE trunk connections. It is not possible to configure a D-channel of an ISDN BRI Trunk Access as a VNS D-channel. However, the voice connection through the Public Exchange of a VNS call may use an ISDN BRI Local Exchange trunk. Also, Trunk Anti-Trombonig is supported on VNS BRI trunks.

Other ISDN PRI features

The restrictions and limitations applicable to the remaining ISDN PRI features are similarly applicable to ISDN BRI trunks.

Generic X11 International features — lines and trunks

Generic X11 International features interaction

This section defines the Generic X11 International feature support and interaction with ISDN BRI. Table 3 indicates to what extent the Supplementary features are supported by ISDN BRI. For a more detailed description of these features, refer to the *Generic X11 Software Features Guide* (553-3001-306).

Table 3 indicates to what extent the Supplementary features are supported by ISDN BRI. A more detailed description of features partially supported by ISDN BRI is given following Table 3.

Table 3
Feature interaction - Generic X11 International features lines and trunks.

Features and services	Supported	Comments
— LEGEND —		
yes = fully supported		
no = not supported due to ISDN BRI Standards limitations		
P = Partially support with description of limitation.		
Features labeled with "****" have a more detailed description later in this chapter		
—A—		
ACD Answering Time in Night Service	no	
ACD Call Priority	no	
ACD Call Waiting Threshold	no	
ACD Calls on Hold	no	
ACD Enhancements		
— Call Delays	no	
— Dynamic Queue Threshold	no	
— Threshold Visual Indication	no	
ACD Least Call Queuing	no	
Advice of Charge for EuroISDN**	yes	See details later in this chapter
Advice of Charge for AXE-10 Australia and Japan D70**	yes	See details later in this chapter

Table 3
Feature interaction - Generic X11 International features lines and trunks.

Features and services	Supported	Comments
Attendant and Network Wide Remote Call Forward**	P	See details later in this chapter
Attendant Blocking of DN**	P	See details later in this chapter
Alternative Conference Pad Levels	yes	
Alternative Loss Plan	yes	
Asia Pacific CO Connectivity	yes	trunks only
Attendant Display of Speed Call or Autodial	no	
Attendant Forward No Answer**	P	See details later in this chapter
Attendant Recall with Splitting Optional	no	
Attendant Through Dialing Network Wide	yes	trunks only
Autodial Tandem Transfer	no	
Automatic Gain Control Inhibit and Handset Volume Reset	no	
Automatic Redial	no	
Automatic Guard Detection	yes	
— B —		
Bar Reciprocal Call Forward	no	
Break-in Features		
— Break-in to inquiry calls	no	
— Break-in to line lockout denied	no	
— Break-in with Secrecy	no	
— Break-in Indication/Prevention	no	
— Break-in/Call Forward	no	
Busy Tone Detection for APAC and CALA	no	

Table 3
Feature interaction - Generic X11 International features lines and trunks.

Features and services	Supported	Comments
Busy Tone to Night DN on Busy DN**	P	See details later in this chapter
Busy Verify on Calling Party Control	no	
— C —		
Call Connection Restriction	yes	
Call Detail Recording Enhancement	no	
Call Detail Recording with Optional Digit Suppression	yes	
Call Forward and Busy Status	no	
Call Forward, Break-In and Hunt Internal or External Network Wide	no	
Call Forward/Hunt Override via FFC**	p	See details later in this chapter
Call Forward to Trunk Restriction	yes	
Call Page Network Wide	yes	
Call Park Network Wide	no	
Camp-on to Multiple Appearance DN	no	
Card LED Status	no	
Centralized Multiple Line Emulation	no	
Charge Display at End of Call	no	
China #1 Signaling Features**	P	See details later in this chapter
CIS Multifrequency Shuttle	no	
— D —		
Default Loss Plan	yes	
Dial Tone Detection	no	

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
DID to Network Calling	yes	
Digital Private Networking Signaling System 1 (DPNSS1)	no	
DISA on Unsupervised Trunks	no	
Display of Calling Party Denied	no	
Distinctive Ringing Network Wide	no	
DNIS Length Flexibility	no	
— E —		
E.64/ESN Numbering Plan Expansion	yes	
End Dialing on Direct Inward/Outward Dialing	yes	
End of Selection	yes	
End of Selection Busy	yes	
Enhanced Charge Display	no	
Enhanced Malicious Call Trace	no	
Enhanced Secrecy	no	
EuroISDN**	yes	See details later in this chapter
EuroISDN Continuation	yes	
EuroISDN Continuation Phase III	yes	trunks only
EuroISDN Mlicious Call Identification	yes	trunks only
EuroISDN Network Side	yes	
Executive Distinctive Ringing	no	

Table 3
Feature interaction - Generic X11 International features lines and trunks.

Features and services	Supported	Comments
— F —		
FCC Compliance for Equal Access	yes	
FCC Compliance for Equal Access - CAC Expansion	no	
First-Second Degree Busy Indication	no	
Flexible Attendant Call Waiting Threshold	no	
Flexible Busy Tone Timer	no	
Flexible Dial Tone Detection	no	
Flexible Features Codes	no	
Flexible Key Assignment	no	
Flexible Tone and Digit Switch Control	no	
Forced Camp-on**	P	See details later in this chapter
Forward No Answer Call Waiting for DID	no	
— G —		
Global Line Cards	no	
— H —		
Hold Features		
— Automatic Hold	no	
— Held Call Clearing	no	
Hunting by Call Type	yes	
Hunting and Speed Call Features**	P	See details later in this chapter

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
— I —		
Idle Extension Notification	no	
India Phase II	no	
Intercept Computer Interface Dial From Directory	no	
Intercept Computer Enhancements		
— Answering Machine enhancements	yes	
— Malicious Call Trace DN and TN print	yes	
— Call Forward interaction control**	P	See details later in this chapter
Intercept Computer Interface**	P	See details later in this chapter
Intercept Treatment Enhancement	no	
Interchangeable NPA	no	
IPE Completion	no	
IPE Loss Plan for China	no	
ISDN CLID Enhancements	yes	
ISDN QSIG Basic Call	yes	
ISDN QSIG/EuroISDN Call Completion	yes	
ISDN QSIG Call Diversion Notification	yes	
ISDN QSIG Generic Functional Transport	yes	
ISDN QSIG Name Display	yes	
ISDN QSIG Path Replacement	yes	trunks only
ISDN Semi Permanent Connection for Australia	no	

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
ISDN BRI Trunk Access for Japan	yes	
Italian Phase 2 Features for DTI2	no	
— J —		
Japan (D70) PRI nB+D	no	
Japan TTC Common Channel Signaling	no	
— L —		
Loop Start Supervisory Trunks	no	
Loop Start Supervisory Trunks (incoming calls)	no	
— M —		
Make Set Busy	no	
Malicious Call Trace Enhancement	no	
Malicious Call Trace Idle	no	
Malicious Call Trace on DID	no	
Manual Service Recall to Attendant	no	
Meridian 1 to New Zealand NEAX-61 ISDN PRI connectivity**	yes	See details later in this chapter
Meridian Mail Trunk Access Restriction	no	
Meridian Hospitality Voice Services	no	
Message Intercept	no	
Message Waiting Unconditional	no	
Multi Language Messages	no	

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
Multifrequency Compelled Signaling Features**	P	See details later in this chapter
— N —		
Network Anti-tromboning	no	
Network Application Protocol Link Enhancement	no	
Network Call Pick-up and TAFAS	no	
Network Drop Back Busy and Off-hook Queuing	yes	
Network Individual Do Not Disturb	no	
Network Ring Again	no	
Network Signaling on VNS	no	
Network Tenant Service	no	
Network Wide LDN**	p	See details later in this chapter
Networking Features**	P	See details later in this chapter
Night Service Class of Service	no	
Night Service Improvements	P	See details later in this chapter
— O —		
On Hold on Loudspeaker	no	
Option 11 Downloadable D-channel	n/a	
Overlap Signaling	yes	
— P —		
Partial Dial Timing	no	
Periodic Camp-on Tone	no	

Table 3
Feature interaction - Generic X11 International features lines and trunks.

Features and services	Supported	Comments
Periodic Clearing	no	
Periodic Pulse Metering**	P	See details later in this chapter
Phantom TNs	no	
Preventing Reciprocal Call Forward	no	
Pulsed E&M DTI2 Signaling	no	
— R —		
Radio Paging Improvements**	P	See details later in this chapter
Radio Paging Product Improvement Continuation	no	
Recall with Priority During Night Service	yes	
Recorded Announcement for Calls Diverted to External Trunks**	P	See details later in this chapter
Restricted DID Class of Service	yes	
Ring Again on No Answer	no	
Ring and Hold Lamp Status	no	
Ringing Change Key	no	
RPE (2Mb) Alarm Handling	no	
R2 Multifrequency Compelled (MFC) Signaling	yes	
R2 Multifrequency Compelled (MFC) Selective Route to Attendant	yes	
R2 MFC Tiner Control	no	
— S —		
Semi-automatic Camp-on	no	

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
Semi-compelled MFC and Calling Number Identification Changes	no	
Series Call	no	
Seizure Acknowledgment	yes	
Selectable Directory Number Size	yes	
Single Digit Access to Hotel Services	no	
Slow Answer Recall Modification	yes	
Source Included When Attendant Dials	no	
Spanish KD3 DID/DOD Interface	no	
Special Dialtone after Dialed Numbers**	P	See details later in this chapter
Source Included when Attendant Dials	no	
Speed Call DN Access	no	
Speed Call on Private Lines	no	
Standalone Meridian Mail	no	
Station Activity Record	yes	
Supervised CO Trunk Simplification	no	
— T —		
Telelink Mobility Switch	no	
Telset Call Timer Enhancement	no	
Tone to Last Party	no	
Transfer Tone	no	
Trunk Anti-Tromboning	no	

Table 3**Feature interaction - Generic X11 International features lines and trunks.**

Features and services	Supported	Comments
Trunk Direct Inward Dialing Digitone Receiver Acknowledgment	no	
Trunk Failure Monitor	no	
Trunk Hook Flash Enhancement	no	
Trunk to Trunk Connection	no	
— U —		
Universal ISDN Protocol Engine	yes	
— V —		
Variable Flash Timing and Ground Button	no	
Variable Guard Timing	yes	
Virtual Network Services	P	
Virtual Network Services in the UK with DASS2/DPNSS1 Bearers	no	
Virtual Network Services in the UK with Virtual DN Expansion	no	
Voice Call Override	no	

The following lists the Option 11 features that are tagged in the above table with a “***”. These descriptions provide further details of the interaction of the feature with ISDN BRI

Generic X11 International features partially supported

The following descriptions provide additional information for the features tagged with “**” in Table 3.

Attendant and Network Wide Remote Call Forward

Prior to Release 20, the Remote Call Forward (RCFW) feature allowed a user to administer call forward from a remote set within the Meridian 1 or from outside the Meridian 1 through the Direct Inward System Access (DISA) number. The RCFW feature was not available on a network wide basis, nor was it applicable to Attendant Consoles. This enhancement introduces the RCFW feature across the Meridian Customer Defined Network (MCDN), while also providing the attendant with RCFW capabilities.

The feature capabilities of the set-based (FFC activated) network wide application of the RCFW feature match those of the current standalone RCFW feature.

This feature is supported over ISDN BRI trunks within an MCDN environment; it is not supported on ISDN BRI sets.

Attendant Blocking of DN

This feature allows a person to dial the attendant DN and request an external (long distance) call, and then disconnect while waiting for the call to be processed by the attendant. The requesting DN is idle and can receive and make calls.

When the attendant is ready to make the external (long distance) call, the Attendant Blocking of DN feature provides the attendant with the ability to block the DN while the external call request is being processed. The line appears busy to any caller attempting to contact the blocked DN. The blocked DN cannot be used to originate a call and will be connected to the attendant if it goes off hook. When the attendant has completed the external call, the blocked DN can be rung and the call extended. The attendant is guaranteed that the requesting DN is not busy and is available to take the call when the processing has been completed. This feature works in both standalone and Meridian Customer Defined Network (MCDN) environments.

This feature is supported over ISDN BRI trunks in an MCDN environment, if NAS is equipped. It is not supported if a call is extended to an ISDN BRI set.

Attendant Forward No Answer

This feature allows calls that are not answered by an attendant within a defined period of time, to be routed to the night DN or to another attendant. It also allows DID call that are not answered within a defined period of time, to be disconnected.

This feature is transparent to calling ISDN BRI terminals. However, originating a call routed by Attendant Forward No Answer cannot be updated. Also, an ISDN BRI terminal cannot be defined as a night terminal.

Busy Tone to Night DN on Busy DN

This feature allows busy tone, rather than ringback tone, to be provided to a night DN during night service.

This feature is supported transparently if the calling station is an ISDN BRI terminal; however, an ISDN BRI terminal cannot be supported as a night DN terminal.

Call Forward/Hunt Override via FFC

Call Forward/Hunt Override provides all telephone users (having a specific class of service) and attendants with the ability to override Intercept Computer Call Forward (ICP-CFW), Call Forward All Calls, Call Forward No Answer, Hunting and Make Set Busy by entering a Flexible Feature Code. Sets without Call Forward/Hunt Override denied (CFHD) class of service will not be able to use the Call Forward/Hunt Override Via Flexible Feature Code (FFC) feature.

Call Forward/Hunt Override Via FFC works in network environments with Meridian 1 nodes and Meridian Customer Defined Network (MCDN) links.

This feature is supported over ISDN BRI trunks in an MCDN environment, if NAS is equipped. It is not supported on ISDN BRI sets.

China #1 signaling features

Part 2 features

This group of features is comprised of the following:

- External Operator features, comprised of:
 - Call Back;
 - Calling Party Control (CGPC);
 - Called Party Control (CDPC);
 - Toll Operator Break-in (TOBI).
- Multiple Frequency Compelled (MFC) Direct Outward Dial (DOD) with outgoing Calling Number Identification (CNI);
- Outgoing Toll Call Identification.

The External Operator Call Back feature is used by CGPC, CDPC, and TOBI. It allows a calling station connected to a trunk call to be put on hold while going on hook. When the special operator signal is received over the trunk the system will ring the station again. CGPC allows the call to be kept on hold for a defined period of time, and to reconnect the call when the called party goes off hook. The call is released if the calling party goes on hook once more. CDPC allows an operator, involved in an operator-assisted call from a Meridian 1, to automatically recall a station without having to re-dial it. TOBI allows a toll operator to break in to an established call.

If an ISDN BRI terminal is the controlling party (that is, the called party in CDPC or the calling party in CGPC), the features are supported transparently, since disconnect messages from the trunk are ignored. If an ISDN BRI terminal is not the controlling party, when it goes on hook, this operation is not supported on ISDN BRI.

TOBI to an ISDN BRI terminal is not supported.

MFC DOD with outgoing CNI allows outgoing Calling Number Identification information on outgoing MFC trunk calls. CNI information is customer-related and terminal-related, both of which are supported for ISDN BRI. Terminal-related information is a category code defined in overlay 10 or 11. For ISDN BRI terminals, the category code is supported on a DSL basis. Overlay 27 has been modified to configure and print category codes, using the “category code” (CAC) prompt.

Outgoing Toll Call Identification allows outgoing toll calls to be identified in a new manner. This feature is supported transparently for ISDN BRI.

Addendum to Part 2 features

This group of features is comprised of the following:

- Operator call back feature enhancement;
- Special operator call back ringing;
- Malicious Call Trace enhancement;
- Tones and announcements;
- Active feature dial tone;
- Audible alarm.

The Operator call back enhancement allows Call Wait or Camp-On to Calling Party Control and Called Party Control calls, and Attendant Break-in to outgoing Calling Party Control calls and incoming Called Party Control calls. The Camp-on and Break-in capabilities are not supported on ISDN BRI, while the Call Wait capability is supported transparently for ISDN BRI.

The Special operator call back ringing enhancement provides operator control of ringing cadences used in Toll Operator Call Back. This capability is supported transparently for ISDN BRI.

The Malicious Call Trace enhancement allows a Meridian 1 to have Called Party Control on incoming calls when the Malicious Call Trace (MCT) feature is activated from a station, or when the Multifrequency Compelled (MFC) Idle Call Trace (IDCT) signal is sent. This enhancement is not provided on ISDN BRI.

The tones and announcement feature allows a howler tone to be given to indicate that a 500/2500 terminal is off-hook. This capability is not applicable to ISDN BRI terminals. This feature also provides new intercept treatments upon the reception of some MFC signals. This capability is supported transparently for ISDN BRI.

The active feature dial tone capability provides a distinctive dial tone to a station going off hook when it has the Do Not Disturb (DND) or Make Terminal Busy (MSB) feature active. This capability is not provided on ISDN BRI.

The audible alarm feature provides an alarm to be sounded when an emergency number has been dialed, or when the system is alerted of an incoming malicious call. This capability is supported transparently for ISDN BRI.

Part 4 - Ministry of Electricity and Industry (MOEI) features

This group of features is comprised of the following:

- KE Multifrequency Compelled Signaling;
- Flexible timers (dialtone, interdigit, and delayed answer);
- Calling party DN option;
- Flexible Feature Codes (FFCs).

KE Multifrequency Compelled Signaling is used to inform the Central Office that the call is a tandem call. This capability is supported transparently for ISDN BRI.

Flexible timers provides customer-defined parameters to control the following timeouts:

- the dialtone timeout, after the terminal has been placed off-hook and no digits dialed. After timeout, the terminal is placed in line lockout
- the interdigit pause timeout, between the first and second digits, and the interdigit pause timeout, after the second digit
- the delayed answer timer provides a customer-defined timeout to control the period that a terminal remains ringing before it is answered. If timeout occurs, the ringing and ringback stop, and the call is disconnected.

Flexible timers is not supported on ISDN BRI terminals.

Calling Party DN allows the Meridian 1 to send to the Toll Office the calling-party customer DN and, if applicable, the calling-party DID DN for all outgoing calls. This capability is supported when the calling party is an ISDN BRI terminal.

The Flexible Feature Code enhancement answers China's Ministry of Electronic Industry's requirement to access the following features from a 500/2500 telephone terminal, using Flexible Feature Codes:

- Autodial
- Call Waiting
- Make Terminal Busy
- Multiple Wake-up

This capability is not provided for ISDN BRI.

Forced Camp-on

Forced Camp-on allows a call to be camped on to a busy station while providing a warning tone. This is typically followed by the activation of Priority Override, which allows break-in to the established connection.

Forced Camp-on is activated automatically (if Automatic Forced Camp-on is defined); or, it can be activated manually using the Enhanced Override (EOVR) key on M1000 series and Meridian digital terminals or the Enhanced Override Flexible Feature Code on 500/2500 terminals. If the EOVR key is pressed again or the Enhanced Override Flexible Feature Code dialed again, Priority Override is activated. The terminal performing the override must have a priority level equal to or higher than the terminal being overridden. To activate Priority Override, the user of a 500/2500 terminal dials the Override Flexible Feature Code, while the user of a M1000 series or Meridian digital terminal presses the Override key (OVR). Priority Override can also be activated using the Enhanced Override Flexible Feature Code or the Enhanced Override key (EOVR).

Forced Camp-on is partially supported on ISDN BRI terminals, as explained below:

- Forced Camp-on to an ISDN BRI terminal is not possible, because Forced Camp-on requires Warning Tone Allowed Class of Service (ISDN BRI terminals are defaulted to WTD COS);
- Forced Camp-on from an ISDN BRI terminal is not possible because feature keys and FFC are not supported for ISDN BRI;
- a BRI terminal transferred to a non-BRI terminal may have forced camp-on applied to it, if no COS restrictions apply; however, the ISDN BRI terminal display is not updated.

Intercept Computer Interface

This feature allows the Meridian 1 to use an intercept (attendant assistance service) computer for storing and retrieving call messages. Calls to an absent tenant's DN using this feature are routed to a designated Intercept Position (ICP) DN. A terminal at the ICP displays a message stating why the tenant at the DN is absent. The person at the ICP can then store the caller's message for the tenant's DN and activate the message waiting LED at the tenant's telephone. The tenant at the DN retrieves the stored caller messages by calling the ICP, where the messages are displayed on the terminal (or optionally printed).

The feature can be activated or deactivated by the following:

- A Flexible Feature Code (FFC) dialed from the tenant's telephone. This code specifies the reason for the tenant's absence and can be extended with a date and time as extra information. The FFC decodes into a text message;
- Pressing the Call Forward All Calls (CFW AC) key on an SL-1 telephone (deactivation);
- From the ICP terminal;
- Automatically when a TN is disabled or enabled by a maintenance overlay program.

The Intercept Computer Interface is partially supported on ISDN BRI terminals, as explained below:

- an ISDN BRI terminal cannot access the ICP feature, since FFCs are not supported for ISDN BRI; also, the ICP feature cannot be activated on an ISDN BRI terminal from the intercept computer or via a maintenance overlay program, since the ICP feature is activated on a terminal basis;
- an ISDN BRI terminal cannot act as an intercept position, or be allowed to be a default DN for intercept transfer; only Message Center ACD DNs and attendant DNs are allowed to be intercept positions;
- a call originating from an ISDN BRI terminal and terminating on a non-ISDN BRI terminal with ICP active is intercepted according to the ICP configuration; the ISDN BRI terminal display cannot be updated after the call redirection.

Intercept Computer enhancements

Call Forward interaction control

When an intercept transfer is activated from a customer's or tenant's extension, it may be configured that only external calls be forwarded to the external intercept DN (ECDN), while internal calls are forwarded to an answering machine, or the internal intercept DN (ICDN). Note that this capability applies only if the extension's flexible call forward no answer DN (FDN) is not configured as an intercept position.

This feature is partially supported on ISDN BRI terminals, as explained below:

- since an ISDN BRI terminal cannot access the ICP feature, it cannot support this ICP enhancement;
- a call originating from an ISDN BRI terminal that is considered as an internal calling party, and terminating on a non-ISDN BRI having the ICP feature active, is diverted to the intercept DN for internal calls.

Multifrequency Compelled Signaling features

R2 and MFC signaling on DID and TIE trunks

This feature allows line and register signaling on DID and TIE trunks, using an MF sender and receiver card. Each forward signal sent to the Central Office is acknowledged by a backward signal. This feature also allows the Meridian 1 to request Calling Number Identification (CNI) information, to be shown on the originating terminal's display.

The register signaling part of this feature is supported for ISDN BRI. The CNI display is not supported.

Multifrequency Signaling for Socotel (MFE)

Multifrequency Signaling for Socotel (MFE) is similar to R2 Multifrequency Compelled (MFC) Signaling, but is not compelled in the same way. Instead of each signal being answered by another signal of some meaning, each signal is answered by a control frequency which indicates to the other end of the call that the signal has been received and its transmission can cease. In this way, signals may originate at either end of the call.

R2 MFC Signaling operates by answering each forward signal from the originating end, with a backward signal from the terminating end. Each signal must be interpreted using the appropriate table. Unlike R2 MFC Signaling, backward and forward signals use the same frequency combinations. The need for the concept of an incoming or outgoing sender/receiver is replaced by an MFE sender/receiver, which can act in both directions during any single call.

Pulsed signals, which are used in R2 MFC Signaling to indicate a message being initiated from the CO which normally replies, are no longer necessary with the new MFE card.

The sequence of messages sent to and received from the CO is transparent to the ISDN BRI terminal.

Networking features

International ISDN PRA interworking

The interworking between ISDN BRI and International ISDN PRA Central Office Connectivity allows voice calls to always be completed to and from ISDN BRI terminals; however, some restrictions may apply to data calls.

Advice of Charge for NUMERIS connectivity

This feature provides the total cost for a call made from a Meridian 1 switch to the ISDN access designed for France (NUMERIS). The Meridian 1 to NUMERIS PSTN connectivity is implemented using ISDN packages PRI2 and IPRA.

This feature is supported for ISDN BRI terminals as the Periodic Pulse Metering feature is supported.

Advice of Charge for AXE-10 Australia and Japan D70 connectivity

The Advice of Charge (AOC) at End of Call for AXE-10 Australia and Japan D70 feature supports charge information being sent from an AXE-10 (Australian) or D70 (Japanese) Central Office to the PBX, over an ISDN BRI connection. The information is sent for outgoing calls from the PBX.

Information is received and displayed when the call is taken down. It is displayed on the caller's telephone display as supported by the Charge Display at End of Call feature. This feature appends the charge information to existing information on the display and retains the information displayed for 10 seconds. Charge Display applies to display-equipped Meridian Modular terminals, M2317, and M3000 sets only. The information is also printed as part of the Call Detail Recording (CDR) record.

Australia introduces PBX control of the AOC facility, meaning that the information must be requested for each outgoing call as opposed to expecting it for every call once the feature has been configured. Japan does not support PBX control of the AOC facility.

Message Registration (MR) and Periodic Pulse Metering (PPM) are both packaged under software package 101. Prior to the introduction of this feature, the method used to differentiate which feature was equipped was to check if the International Supplementary Features software package was equipped. If it was, PPM was required. Since the Supplementary Features package is not available in Japan and AOC requires PPM software, a new method of differentiation has been introduced. This method uses a system-wide flag to allow the customer to select between MR and PPM. This flag is set by a prompt in LD 17.

The AOC feature does not support AOC being sent to ISDN BRI terminals. Ameter can be assigned to a DSL. All chargeable calls made by an ISDN BRI terminal on this DSL are charged against the DSL's meter.

Advice of Charge EuroISDN connectivity

This feature provides Integrated Services Digital Network (ISDN) Primary and Basic Rate Interfaces to Central Offices/Public Exchanges that comply to the European Telecom Standards Institute (ETSI) specification ETS 300 102 for the Layer 3. The interfaces provided by this feature also comply with the country-specific Application Documents for Austria, Denmark, Finland, Germany, Holland, Ireland, Italy, Norway, Portugal, Sweden, and Switzerland. Other countries must comply with ETS 300 102 to be supported.

The supplementary services Calling Line Identification Presentation, Calling Line Identification Restriction, Connected Line Identification Presentation and Connected Line Identification Restriction are provided for the above countries where Application Documents are available. In addition, Advice of Charge for EuroISDN is supported in some of these countries. For more information about Advice of Charge for EuroISDN, see the feature description contained in this document.

The EuroISDN feature also provides interworking with other ISDN or non-ISDN interfaces including Meridian Customer Defined Network (MCDN), QSIG, Digital Private Network Signaling System 1 (DPNSS1), R2 Multifrequency Compelled Signaling (R2 MFC), 2 Mbit Digital Trunk Interface (DTI2), and analog trunk interfaces. This feature also provides interworking between NET3 S0 (ETSI compliant BRI sets) and DPNSS2/DASS2 (Digital Access Signaling System 2) links.

Meridian 1 to New Zealand NEAX-61 ISDN PRI Connectivity

This feature provides an ISDN Primary Rate Interface (PRI) between a Meridian 1 (SL-1) and New Zealand NEAX-61. The design is based on the international 30B + D PRI configuration.

The NEAX-61 interface will support calls from ISDN BRI sets within the MCDN. These will be able to call out to and receive calls from the Public Switched Telephone Network (PSTN), also called the ISDN public network. Operation will be as though the call was a tandem trunk call.

Although ISDN BRI trunks to the NEAX-61 are not supported, any ISDN BRI trunks supported to other interfaces will be able to tandem to the PSTN transparently. Feature operation will appear to the user as though the call was from a normal PRI network trunk to the PSTN.

Network Wide Listed Directory Numbers

This feature enables LDNs to be recognized network wide when Network Attendant Service (NAS) is used. The same LDNs must be configured in multiple nodes. Network LDN is defined on a customer basis.

This feature is supported over ISDN BRI trunk DSLs.

Night Service improvements

All calls remain queued for night service

This feature allows all calls that are queued for an attendant when night service is entered, to remain queued in order to be presented to the night DN.

This feature is supported for ISDN BRI-originated calls; however, the displays on the ISDN BRI terminals are not updated to reflect the call modification.

Automatic timed reminder recalls to the night DN

This feature allows any recall that times out during night service, to be presented or queued to the night DN. This applies to slow answer recall, call waiting and camp-on calls extended by an attendant, and camp-on calls extended by a terminal.

This capability applies to external call only, since there is no internal recall to a night DN unless done by NAS routing.

This feature is partially supported for ISDN BRI. If an external call has been extended an attendant to an ISDN BRI terminal, and the slow answer recall timer or the call waiting recall timer expires before the call is answered, the call is presented or queued to a local or remote night DN. The ISDN BRI terminal is disconnected in the case of the slow answer recall, and the call waiting canceled in the case of the call waiting. The camp-on recall timer does not apply, because Camp-on is not supported for ISDN BRI.

If a call originating from an ISDN BRI terminal has been extended or camped on by the attendant to a non-ISDN BRI terminal, the call is timed for slow answer recall, call waiting recall, or camp-on recall. If the timer expires, the call is dropped if not controlled by NAS routing. The call is also dropped if it is controlled by NAS routing and the night DN is at a remote node. If the call is controlled by NAS routing and the night DN is at the local node, the call is presented or queued to the night DN. When the recall timer expires, the terminating party is disconnected, or the call waiting or camp-on is canceled.

A non-ISDN BRI terminal cannot extend a camp-on to an ISDN BRI terminal, since Camp-on is not supported for ISDN BRI.

Periodic Pulse Metering

This feature, based on the Message Registration feature, allows meters to be assigned to terminals, attendant consoles, trunk routes, and customers. This permits Meridian 1 customers to maintain accurate records of Central Office and DOD calls, for billing or administrative purposes. The Call Detail Recording (CDR) feature has been enhanced to record the PPM metering information.

This feature has been adapted for ISDN BRI application as follows. Since meters cannot be assigned to ISDN BRI terminals, because there is no standard protocol to update an ISDN BRI terminal's meter, meters have been assigned to Digital Subscriber Loops (DSLs) instead. All charges due to ISDN BRI terminals located on the same DSL are accumulated on the assigned meter. The contents of this meter may be read or changed from any authorized non-ISDN BRI station.

The metering of conventional trunks is supported transparently. The metering of ISDN BRI trunks is not supported.

Meter recalls to the attendant and background terminal messaging uses the originating ISDN BRI CLID.

Meter charge transfers associated with the activation of Hunt or Call Forward No Answer from an ISDN BRI terminal are not supported; the calling party is charged for the entire call.

Recorded Announcement for Calls Diverted to External Trunks

Recorded Announcement for Calls Diverted to External Trunks (RANX) provides an optional recorded announcement when the call is being forwarded to external Public Exchange/Central Office (over DTI, DTI2, PRI2, PRI, or analog trunks) or over ISDN BRI trunks connected to AXE-10 or EuroISDN routes. The announcement notifies the calling party that call forwarding is taking place and the call may take longer than usual to set up. The delay depends on the required signaling to reach the destination party.

Radio Paging

This feature allows call paging through the use of a Flexible Feature Code. The paged party, who is notified of a call page by the buzzing of a special device, can later access the paging party by dialing another FFC. There are three methods of paging a call:

- pre-selection, whereby the paging is performed right away;
- post-selection, whereby a FFC is used in cases where the desired party is busy or does not answer;
- forwarding to a paging equipment.

Paging cannot be done from an ISDN BRI terminal, since FFCs are not supported for ISDN BRI. Paging to an ISDN BRI terminal is supported for the pre-selection and post-selection methods; it is not supported for the forwarding method.

Radio Paging Product Improvements

Attendant Recall over Network

This product improvement enables Radio Paging (RPA) to recall the attendant who originated the Radio Paging call only; the attendant may be located anywhere within an ISDN Meridian Customer Defined Network (MCDN) configured with Network Attendant Services (NAS).

Digit Display to Same Attendant

This improvement enables the attendant's display to be updated with paged name to display paged name instead of answering name on the paging party when answered, and to make network Radio Paging show the same display information as in the standalone operation.

Since ISDN BRI sets do not support FFCs, they cannot be used to access or answer RPA calls if the ISDN BRI sets are local on the paging node. For network situations, ISDN BRI sets can access and answer remote RPA calls. This is possible because the RPAX/RPAN FFCs are dialed as DSC/TSC steering codes.

Attendant Recall over Network is supported over ISDN BRI trunks within an ISDN Meridian Customer Defined Network (MCDN) configured with Network Attendant Services (NAS).

Special dialtone after dialed numbers

This feature allows special dial tones to be provided after certain dialed digits.

This feature is generally supported for digits dialed from ISDN BRI terminals. For each TERMINALUP and INFO message, the software determines if tones are required; however, if enblock dialing is used, it cannot be confirmed whether or not some of the messages contain only one digit, or several digits. If they contain several digits, some tones may be skipped.

Station Activity Record

Station activity records are generated for sets with class of service Call Detail Monitoring Allowed (CDMA) for all incoming and outgoing calls if Call Detail Recording (CDR) is allowed for the customer. Their format is identical to regular CDR records, but they have a new type identifier (D). Other CDR records are not affected by this new functionality.

Station activity records are supported on ISDN BRI sets with a class of service Call Detail Monitoring Allowed (CDMA), for external calls.